Bretschneider Botanicon Sinicum Pt II

Bretschneider, Bot. Sinicum II.

Journal
OF THE
China Branch
OF THE
Royal Asiatic Society.

NEW SERIES. VOL. XXV. 1890-91.

SHANGHAI, 1893

Price $5.50

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JOURNAL

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FABER, Rev. ERNST, Dr. Theol.

CORRIGENDA AND ADDENDA TO PART I.

[*See Vol. XVI of the Journal.*]

P. 28, line 8, for *Tsi* read *Ts'i*.
P. 37, „ 12, for *yen* read *jan*.
P. 53, „ 6 from bottom, for *jen* read *yen*.
P. 60, „ 8 „ „ for 間 read 問.
P. 62, „ 8 „ „ for *tsao* read *sao*.
P. 65, „ 12 „ „ for 粟 read 栗.

P. 77 :—The *Ts'i min yao shu* was republished in 1882 in Wu ch'ang fu (Hupei). The name of its author is KIA SZ'-HIE (not NIU, 牛 being a misprint for 丱).

P. 82 :—*Nung cheng ts'üan shu.* A detailed account of this Chinese work on husbandry is found in the *Journal of the Horticular Soc.*, London, Vol. IX, 1855, p. 257 *seqq.* : "Analysis of a Chinese Work on Husbandry and Botany;" by Sir J. F. DAVIS, Governor of Hongkong.

P. 150, No. 183 :—I stated that the treatise *Hua pu* by YU MO-CHAI was written in the present dynasty. But I subsequently found that it is of an earlier date, for it is quoted in the *Pen ts'ao kang mu* [XXIII, 23] at the end of the article *ying su* (poppy).

P. 153, No. 226 :—The author KUNG SIN is sometimes quoted in the *Pen ts'ao kang mu* under the name of 龔雲林 KUNG YÜN-LIN.

P. 162, No. 349 :—*Ko ku yao lun.* Compare *China Review*, X, 308, Dr. EITEL'S note on this work :—Discourses on Criticisms of Ancient Art-Treasures; by 曹明仲 TS'AO MING-CHUNG; published A.D. 1387.

P. 184, between No. 683 and 684, insert :—

No. 683*a*.—上林苑賦 *Shang lin yüan fu*, a poem on the Imperial Gardens Shan lin yüan, at the Chinese capital Ch'ang an, by 司馬相如 SZ' MA SIANG-JU, who lived in the second century B.C. [†126]. This poem is occasionally quoted in Chinese botanical works with respect to rare plants referred to in it. [Compare *Botan. sin.*, I, p. 24, note.]

P. 190, between No. 770 and 771, insert :—

No. 770*a*.—西洋朝貢典錄 *Si yang ch'ao kung tien lu* (Records of the Tribute sent to the Court of China by the Countries of the Western Ocean); by 黃省曾 HUANG SHENG-TS'ENG, who lived during the early portion of the 16th century. [Compare MAYERS in *China Review*, III, 220]. This work gives many interesting details regarding the vegetable productions of the countries of the Indian Ocean. HUANG SHENG-TS'ENG is, I suspect, identical with the author of the same name who wrote several treatises on plants and beasts. [See *Botan. sin.*, Nos. 96, 249, 744.]

P. 196, No. 854 :—*Tan fang kien yüan*, an alchemistic work. It was published in the T'ang dynasty, as is stated in the *Pen ts'ao kang mu*, [XVII*b*, fol. 30, art. 鬼臼].

P. 205, between No. 991 and 992 insert :

991*a*.—東西洋考 *Tung si yang k'ao* (Researches on the Eastern and Western Ocean); published in 1618 by WANG CH'I-TSUNG, Superintendent of Revenue in Nanking, and some other functionaries. [*See* GROENEVELDT, *Notes on the Malay Archipelago*, etc., 1876, p. viii.] It contains also notices of plants and vegetable productions of foreign countries brought to China by merchants. There are in it two interesting Chinese Customs' tariffs referring to the years A.D. 1589 and 1615, and enumerating a number of foreign drugs and other articles.

P. 209, No. 1047, for *Chao i* read *Chao ye*.

P. 218, Index, column 3, under K'ang. Only the first two names begin with K'ang, the following six should begin with "Kao :"—Kao Ch'eng, etc.

A similar mistake in the Index occurs on p. 220, column 2, under Sung. The last two names should begin with Sz' :—Sz' MA KUANG, Sz' MA TS'IEN.

BOTANICON SINICUM.

NOTES ON CHINESE BOTANY, FROM NATIVE AND WESTERN SOURCES.

By E. Bretschneider, M.D.

INTRODUCTION.

While bringing before the public a new instalment of my *Botanicon sinicum*, I have to apologize for the long interval which has elapsed, nearly ten years, since the appearance of the first or general part. The delay was occasioned for the most part by scientific occupation in other fields.

The subject to be dealt with in the subsequent pages is the Chinese names of plants occurring in the Chinese Classics and some other Chinese works of remote antiquity, and their botanical identification, as far as the scanty ancient records regarding these plants and the present state of our knowledge of the Chinese Flora will permit. The edition of the Chinese Classics in an English translation, first undertaken by an accomplished scholar, thirty years ago, is now nearly complete, and this gigantic work has imperishably connected the name of the eminent sinologue referred to with these Records of ancient Chinese civilisation. The first five (*i.e.* eight) volumes of Dr. Legge's *Chinese Classics*, published in China, reproduce the Chinese text. It is a matter

of regret that the translation of the *Li ki* or Book of Rites, which LEGGE published in 1885 in Vols. XXVII and XXVIII of MAX MÜLLER'S *Sacred Books of the East*, is without the original.[1]

LEGGE'S *Classics* form, of course, the principal basis of my investigations. The great merit of his elaborate edition is, that all the valuable information on various subjects scattered in the bulky Chinese editions of the Classics and their commentaries, has now been made easily accessible to European savants. LEGGE translates, besides the Chinese text of the Classics, most of the Chinese commentaries on the subject written by Chinese scholars of different periods, and his own criticism always shows admirable good sense. As to his attempts to identify Chinese names of natural objects, LEGGE, who does not pretend to be a naturalist, is sometimes mistaken, but on the whole it must be said that even in this field of investigation the author has done much towards the elucidation of dubious questions. In his *Shi king*, he makes constant reference to some modern Japanese plates illustrating this Classic, and especially the beasts, birds, insects and plants mentioned in it. As the greater part of the plants figured in Japanese botanical works have been identified by European botanists, LEGGE generally depends upon these identifications. Occasionally he also relies upon identifications given in MEDHURST'S and WILLIAMS' Dictionaries.

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[1] It is not obvious why LEGGE, in his translation of the *Li ki*, changed the mode of transliterating Chinese sounds adopted by him for all his previous translations. His new transliteration is not a happy one, and gives rise to confusion. Thus the 周 *Chou* dynasty, in his *Li ki*, is termed *Kau*, the 春秋 *Ch'un ts'iu* is changed into *Khun khiu*. His excellent translation, therefore, is not always easily understood without the Chinese text at hand. Besides this, the new transliteration does not seem to be familiar to him, and he occasionally commits errors. [Comp. I, p. 20, *Khin* dynasty, and p. 294, note 1, *Zhin*. In both cases he means the 秦 *Ts'in* dynasty.]

The names of plants occurring in the Chinese Classics are still for the most part in use and applied to the same plants nowadays. But in not a few cases the characters denoting plants in the classical period became altogether obsolete in later times, or lost their original meaning, and are now not applied to plants. Regarding such obscure characters and passages, the Western translator of Chinese classical writings finds himself constrained to rely entirely upon the frequently unsatisfactory commentaries of Chinese scholars who lived many centuries after the time of CONFUCIUS, and who never produce proofs for their assertions. Thus the character 荼 *t'u*, which is of frequent occurrence in the *Shi king*, is said by the Chinese commentators to denote entirely different plants in different passages of this Classic, viz.: Sow-thistle, smart-weed, rushes, and it appears that this was also an ancient name to designate the tea-plant [comp. *infra*, 307].

The character 條 *t'iao* nowadays means the branch of a tree. It has the same meaning in the *Shi king* and in other Classics. But in one passage in the *Book of Poetry* the Chinese commentators make it mean the Catalpa tree [LEGGE says white fir] comp. *infra*, 511. The *Rh ya*, 236, gives *t'iao* as a name for the pumelo. The character 苢 *k'i*, in the Classics, is said by some authors to mean millet, others take it to be lettuce [comp. *infra*, 346, 364].

Considering these difficulties encountered in the critical investigation of ancient Chinese writings, and especially in ascertaining the correct meaning of characters applied to plants in early ages, the reader must not expect a completely satisfactory botanical elucidation of the matter, the design of this paper being merely to show what can be done in the way of botanical explanation of Chinese classical names of plants.

NOTES ON CHINESE, JAPANESE AND EUROPEAN WORKS CONSULTED IN THE PREPARATION OF THIS PAPER.

The books recognized as of highest authority in China, and which we are accustomed to term the "Chinese Classics," are comprehended under the denominations of the 五經 *wu king*, or five *king*, and the 四書 *sz' shu*, or four *shu*.

The five *king* or canonical works are

(1.) The 易經 *Yi king*, or Book of Changes.
(2.) The 書經 *Shu king*, or Book of History.
(3.) The 詩經 *Shi king*, or Book of Poetry.
(4.) The 禮記 *Li ki*, or Record of Rites.
(5.) The 春秋 *Ch'un ts'iu*, the Spring and Autumn Annals.

The authorship, or compilation rather, of all these works is loosely attributed to CONFUCIUS, but much of the *Li ki* is from later hands.

The four *shu*, or four books [of the four philosophers] are

(1.) The 論語 *Lun yü*, or "Digested Conversation," being occupied chiefly with the sayings of 孔子 K'UNG TSZ' (CONFUCIUS) [B.C. 551-479].
(2.) The 大學 *Ta hio*, or Great Learning, commonly attributed to 曾參 TSENG SEN, a disciple of the sage, born B.C. 506.
(3.) The 中庸 *Chung yung*, or Doctrine of the Mean, ascribed to 孔伋 K'UNG KI [B.C. 500-438], the grandson of CONFUCIUS.
(4.) The works of 孟子 *Meng tsz'*, or MENCIUS [B.C. 372-289].

In the famous compilation of the classical books undertaken by order of the Emperor T'AI TSUNG [A.D. 627-649] of the T'ang dynasty, there are thirteen *king*:—

(1.) The 易經 *Yi king*, or Book of Changes.
(2.) The 書經 *Shu king*, or Book of History.
(3.) The 詩經 *Shi king*, or Book of Poetry.
(4.) The 禮記 *Li ki*, or Record of Rites.
(5.) The 周禮 *Chou li*, the Ritual of the Chou dynasty (*v. infra*).
(6.) The 儀禮 *I li*, or Decorum Ritual [*v. infra*].
(7–9.) 春秋三傳 *Ch'un ts'iu san chuan*, the Spring and Autumn Annals, with the three expositions or annotations [*v. infra*].
(10.) The 論語 *Lun yü*, Sayings of CONFUCIUS.
(11.) 孟子 *Meng tsz'*, the Works of MENCIUS.
(12.) The 孝經 *Hiao king*, or Classic of Filial Piety [*v. infra*].
(13.) The 爾雅 *Rh ya*, an ancient Dictionary [*v. infra*].

The *Ta hio* and the *Chung yung* do not appear in this list, for they are contained in the *Li ki*.

The same arrangement is found in the great edition of the Classics which appeared in 1815 with the title 十三經註疏 *Shi san king chu shu*, the Thirteen Classics with the commentaries. The character 註 refers to the earlier commentators, of the Han and Tsin dynasties, whilst 疏 denotes the explanations, glosses, etc., of authors of the T'ang and Sung dynasties.

The 易經 *Yi king*, or Book of Changes, has been translated by LEGGE in MAX MÜLLER'S edition of the *Sacred Books of the East*, 1882, Vol. XVI. It is of no interest for our investigations.

The 書經 *Shu king*, or Book of History, termed also 尙書 *Shang shu*, was originally compiled by CONFUCIUS from the historical remains of the Yu, Hia, Shang and Chou dynasties. Besides some scattered notices of Chinese plants, this Classic contains a chapter 禹貢 *Yü kung*, or Tribute of the Emperor YÜ, which presents a peculiar interest for us. This is a geographical description of ancient China, referring to about B.C. 2200, in which are enumerated the principal natural productions of the nine provinces into which China was then divided. [LEGGE's *Classics*, III ; 2 volumes, 1865.]

The 詩經 *Shi king*, or Book of Poetry. [LEGGE's *Classics*, IV ; 2 volumes, 1871, 1872.] The *Shi king* is a collection of odes, ballads and songs used by the people of the various petty states of China in ancient times. LEGGE has proved that the *Shi king*, arranged very much as we now have it, was current in China long before CONFUCIUS. After the burning of the records of the past by order of the Emperor TS'IN SHI [B.C. 220], and the fall of the short-lived Ts'in dynasty, three different texts of the *Shi king* which had escaped the catastrophe made their appearance in the Han dynasty when the edict suppressing literary works had been repealed. Only one of these texts has come down to us. It is called 毛詩 *Mao shi*, the *Shi king* of MAO, which is the Book of Poetry in its present form. This text belonged to 毛亨 MAO HENG, a native of Lu. He is also termed 大毛 TA MAO, the GREATER MAO. He was a disciple of 荀子 SÜN TSZ', who lived in the third century B.C., and wrote a commentary on the *Shi king*, which was lost. But he had communicated his knowledge of the *Shi* to another MAO, 毛萇 MAO CHANG, also called 小毛 SIAO MAO, the LESSER MAO, who was a great scholar at the court of 獻王 king HIEN of 河閒 *Ho kien* (in the Province of Chili), a brother of the Emperor WU TI [B.C. 140-86]. King HIEN was one of the most diligent labourers

for the recovery of ancient books, and presented MAO's text and the work of HENG at the court of the Emperor KING. LEGGE says probably in B.C. 129, but KING TI reigned B.C. 156-140. CHANG himself published his explanation of the *Shi* 毛氏詩傳 in 29 chapters, which still remains.

The *Shi king* is especially rich in Chinese names of plants, cultivated economic plants and wild-growing herbs and trees. CONFUCIUS said [*Analects*, p. 187] that from the *Shi* we become extensively acquainted with the names of birds, beasts and plants. The names of a number of cultivated and wild plants appear in the first of the Odes of Pin, entitled 七月 *Ts'i yüe*, which is of high antiquity. It is accepted by the famous Duke of Chou [12th century B.C.] as a description of the life in Pin in the olden days [comp. *Shi king*, 226]. 豳 or 邠 *Pin* was a small principality in Southern Shensi, Pin chou fu, where the chiefs of Chou dwelt for nearly five centuries [B.C. 1796-1325].

Ancient names for grains are mentioned in the Ode 生民 *Sheng min*, p. 465, which is devoted to the legend of 后稷 HOU TSI, to whom the princes of Chou traced their lineage [comp. *Botan. sin.*, I, 76], and likewise in the Ode *Pi kung*, praising HOU TSI [*Shi king*, 620].

In the second half of the third century of our era 陸機 LU KI, a distinguished functionary in the kingdom of 吳 Wu [south of the Yang tsz'], wrote a commentary in two books on the herbs, trees, birds, beasts, insects and fishes mentioned in MAO's version of the *Shi king*, 毛詩艸木鳥獸蟲魚疏 *Mao shi ts'ao mu niao shou ch'ung yü shu*. It is found in the collection of books of the Han, Wei, etc., periods [*Botan. sin.*, 1, 135]. LEGGE states that the original work was lost, and that that now current was compiled, it is not known when or by whom, mainly from K'UNG YING-TA, who in his commentaries on the *Shi king* quotes the corresponding

descriptions of plants from LU KI's treatise. But there are fragments of other texts of it extant quoted by other ancient authors and preserved in the *Pen ts'ao kang mu*, the *T'u shu tsi ch'eng*, etc., which sometimes differ from the text in the *Han Wei ts'ung shu*. LU KI treats only of the wild-growing plants of the *Shi* (nearly 100). His commentaries on plants, at least in the mutilated and corrupt form in which they have survived, are of little value, his descriptions being generally extremely vague and sometimes unintelligible. For instance, when he uses the character 子 *tsz'* we are always in doubt whether he means fruit or seed, for he applies the same term to both, although the Chinese have a special character 實 *shi* to designate the fruit of plants, while the seed is 子 *tsz'*. Nevertheless LU KI has always been considered as an authority by later Chinese commentators on the *Shi*.

Regarding the *Li* Classics, I may be allowed to follow LEGGE in his clear exposition of the subject.

There are now three Chinese Classics into which the term *Li* enters, the 儀禮 *I li*, the 周禮 *Chou li* and the 禮記 *Li ki*, frequently styled, both by the Chinese themselves and by sinologists, the "three Rituals." The first two are books of the Chou dynasty [B.C. 1122-249], the third, the *Li ki*, may contain passages of an earlier date, but as a collection, in its present form, it does not go higher than the Han, and was not completed till the second century B.C.

At the rise of the Han dynasty [B.C. 206] the *I li* and the *Chou li* were in a condition of disorder and incompleteness. They had suffered with the other books from conflagrations and proscriptions. The sovereigns of the Han undertook the task of gathering and arranging the fragments of the ancient works. In B.C. 164, the Emperor WEN TI ordered the great scholars to compile the "Royal Ordinances," the fifth book of the *Li ki*.

Internal evidence shows that when this treatise was made, the *I li*, or portions of it at least, had been recovered. Afterwards king HIEN of Hokien [*v. supra*], who was a patron of literary men, added a mass of tablets to the *I li*. The recovery of the *Chou li* came not long after. Someone brought to king HIEN of Hokien the tablets of the *Chou li*, then called 周官 *Chou kuan*, or Official Book of the Chou. The *Chou li* is a constitutional, not a ritual, work. Since the T'ang dynasty it has been known by its present title.

The most distinguished of the *Li* scholars in the time of the Emperors HÜAN [72-48 B.C.] and CH'ENG [32-6 B.C.] was 后蒼 HOU TS'ANG, the author of the compilation called in the catalogue of 劉歆 LIU HIN [some years before our era], 曲臺記 *K'ü t'ai ki*. Two of his disciples 戴德 TAI TE and 戴聖 TAI SHENG, cousins, were also celebrated for their ability. TE, the elder of the two, commonly called 大戴 TA TAI, the GREATER TAI, digested the mass of *p'ien* [214] of the *Li* books and reduced the number to 85. The younger TAI, 小戴 SIAO TAI, doing the same for his cousin's work, reduced it to 46. This second condensation met with general acceptance and was styled the 禮記 *Li ki*.

The *Li* of the GREATER TAI, the 大戴禮 *Ta Tai li*, was a voluminous compilation. As the shorter work of his cousin obtained a wide circulation, his fell into neglect. A portion of it is still current, and found in the large collection of books of the Han and Wei dynasties, 39 books in 10 sections. It includes the fragment of the Hia dynasty [B.C. 2205-1766] 夏小正 *Hia siao ch'eng*, or Calendar of the Hia. This, an undoubted record of the Hia epoch, said to have been found in the grave of CONFUCIUS, is a very obscure document, for the most part completely unintelligible without the commentaries by different ancient authors. It notices, in the form of aphoristic sentences, 122 in number, various natural

phenomena, the proceedings of husbandry, and the changes which successively take place in the appearance of the vegetable and animal world in the twelve months of the year. The year of the Hia began, as it does at the present time in China, between the 20th January and 19th February. More than thirty names of plants occur in the text. The Calendar of the Hia was translated into French by E. Biot in the *Journal Asiatique*, 1840, b. p. 551-560. An English version of it, along with the Chinese text, was published in 1882 by Professor R. K. Douglas, of King's College, in the short-lived *Orientalia antiqua*, edited by M. Terrien de la Couperie.

The 禮記 *Li ki* contains much interesting information regarding Chinese economic plants, especially those used for food, viz., cereals, vegetables and fruits. [*See* Chap. I, *k'ü li*, Universal Ritual; III, *wang ki*, Royal Regulations; X, *nei tz'*, Family Rites.] One of the most interesting chapters of the *Li ki* for our investigation is IV—the 月令 *Yüe ling*, Proceedings of Government in the different months—as Legge translates it. It is ascribed to 呂不韋 Lü Pu-wei [*d.* B.C. 237], but evidently his compilation was based upon ancient records. The *Yüe ling* is a counterpart of the *Hia siao ch'eng*, and likewise notices the proceedings of husbandry and the plants and animals making their appearance in each month of the year. It is therefore also termed the "Calendar of the Chou Dynasty" [B.C. 1122-249]. The year of the Chou always commenced with our December.[2]

[2] A similar ancient document is found in the 周書 *Chou shu*, which latter belongs to the so-called Bamboo Books—ancient writings on bamboo, discovered A.D. 279, in a grave. It is entitled 時訓解 *Shi hün kiai* and resembles much the *Yüe ling* in its contents. It was translated by Biot in the *Journal Asiatique*, 1840, b. p. 561-568, with the title, "Exposition des saisons."

The 周禮 *Chou li*, or Official Book of the Chou dynasty, gives the details of the various offices established under the Chou. It is generally regarded as the work of the Duke of Chou [B.C. 1130]. This has been translated into French by BIOT—*Le Tcheou li*, ou *Rites des Tcheou*, 1851, 2 vols.

A great many plants are mentioned in the *Chou li*. BIOT has caused much confusion by his attempts to identify the Chinese names of these plants.

The 儀禮 *I li*, or Decorum Ritual, treats of family affairs and directions for domestic life. It has not yet been translated into any European language.

The 春秋 *Ch'un ts'iu*, Spring and Autumn Annals, the only one of the five Classics actually written by CONFUCIUS, is a history of his native state 魯 Lu, from B.C. 722 to 484. An amplification of the original work was made by one of his pupils 左邱明 Tso KIU-MING, his work being named 左傳 *Tso chuan*, or Tso's Narrative. [LEGGE's *Classics*, V, 2 vols. The *Chun tsew* and the *Tso chwan*, 1872.]

LEGGE's *Classics*, Vol. I, 1861, contains the Confucian Analects, 論語 *Lun yü*, the Great Learning, 大學 *Ta hio*, and the Doctrine of the Mean 中庸 *Chung yung* [*v. supra*].

LEGGE's *Classics*, Vol. II, 1861, contains *Mencius* 孟子 *Meng tsz'* [*v. supra*].

The 孝經 *Hiao king*, Classic of Filial Piety. It claims to be a conversation held between CONFUCIUS and his disciples *Tseng sen*. Translated by LEGGE, 1879, in MAX MÜLLER'S *Sacred Books of the East*, Vol. III.

The ancient Dictionary *Rh ya*. [*See infra*, Chap. I.]

Among the numerous Chinese commentators on the Classics, the following are the most conspicuous ;—

毛亨 Mao Heng and 毛萇 Mao Ch'ang—the Greater and the Lesser Mao—to whom the present text of the *Shi king* is attributed. The elder Mao lived in the first half, the younger in the second half, of the second century B.C. Legge states that it is not positively determined which of them wrote the explanations of the *Shi*. The editors of the thirteen Classics, however, attribute them to the elder Mao [*see* the first page of the *Shi king*, where we read 毛亨注]. Mao's explanations, as far as plants are concerned, are very short and unsatisfactory. He confines himself generally to quoting the *Rh ya*.

孔安國 K'ung An-kuo. He lived in the second century B.C., deciphered the ancient text of the *Shu king* and commented upon it.

鄭司農 Cheng Sz'-nung. First century of our era. He commented upon the *Chou li*. Commentator "A." of Biot.

賈逵 Kia K'ui. A.D. 30–101. He commented upon the *Shi king* and the *Tso chuan*.

馬融 Ma Yung. A.D. 79–166. He commented upon the *Li ki*, the *Shi king* and other Classics.

鄭玄 Cheng Hüan or 鄭康成 Cheng K'ang-ch'eng, a disciple of Ma Yung [A.D. 127–200]. He wrote a supplementary commentary to Mao's *Shi*, and commented upon the *Li ki* and *Chou li*. Commentator "B." of Biot.

王肅 Wang su. Middle of the third century of our era. He commented upon the *Shi king*.

杜預 Tu Yü. A.D. 222-84. He commented upon the *Ch'un ts'iu*.

陸機 Lu ki. A.D. 261–303. He described the plants, beasts, etc., of the *Shi king*. [*V. supra.*]

孔穎達 K'ung Ying-ta. A.D. 574–648. He commented upon the *Li ki*, the *Shi king*, the *Shu king* and the *Ch'un ts'iu*.

賈公彥 KIA KUNG-YEN. T'ang dynasty, 8th century. He commented upon the *Chou li*. Commentator "C." of BIOT.

朱熹 CHU HI. A.D. 1130–1200. Eminent Chinese philosopher. He commented upon the *Shi king*. LEGGE has a high opinion of his critical judgment. His notices regarding plants, however, are not always trustworthy.

王昭禹 WANG CHAO-YÜ. 12th century. He commented upon the *Chou li*. Commentator "D." of BIOT.

嚴粲 YEN TS'AN. 13th century. He wrote a commentary on the *Shi king*. LEGGE ranks him next to CHU HI.

Besides the Classics, there are many other Chinese works of high antiquity in which plants are mentioned. I may notice the following :—

竹書 *Chu shu*, the Bamboo books, is the name appropriated to a large collection of ancient documents, nearly 20 different works written on bamboo tablets, and discovered, A.D. 279, in the tomb of one of the princes of the state of Wei, who died 295 B.C. One of these is the 竹書紀年 *Chu shu ki nien*, Bamboo Record, or Annals. This commences with the reign of HUANG TI and extends to B.C. 299.

An English translation of the Bamboo Annals, along with the Chinese text, has been given by LEGGE in his *Shu king*, Proleg. 105–183. My quotations are taken from this translation.

Another book of this collection is the 汲冢周書 *Ki chung Chou shu*, a record of the Chou dynasty. [See *Botan. sin.*, I, No. 247].

The 山海經 *Shan hai king* is by its title the Classic of the Mountains and Seas, but WYLIE calls it more correctly the Hill and River Classic. It is generally ascribed to the Emperor Yü [B.C. 2200] and professes to give a descriptive account of charts of the nine provinces engraved on nine

metal vases which Yü had caused to be cast of metal received from the nine provinces of China. Regarding these nine vases (九鼎 *Kiu ting*) *see* LEGGE's *Tso chuan*, p. 293, and Bamboo Annals, p. 175, where the history of these vases is related. *See also* BAZIN's interesting account of the *Shan hai king* in the *Journal asiatique*, VIII, 1839, p. 337 *seqq.*

There can be no doubt that the *Shan hai king* is a book of remote antiquity. 子夏 Tsz' HIA, 5th century B.C., one of the disciples of CONFUCIUS, is reported in the 家語 *Kia yu*, or Family Sayings of CONFUCIUS, to have mentioned the 山經 *Shan king*, Hill Classic, evidently the same as the *Shan hai king*, as a book which existed in the time of the Shang dynasty [B.C. 1782–1134].

The editions of the *Shan hai king* now current are in 18 books, with the commentary of 郭璞 KUO P'O [A.D. 276–324], the same who commented upon the *Rh ya*. Only the first five books refer to China proper, the rest is devoted to foreign countries, all fabulous. The headings of the first five books are: Mountains of the South, Mountains of the West, Mountains of the North, Mountains of the East, and Mountains of the Centre of China. Few of the names of mountains and rivers enumerated therein can be identified. Each mountain is believed to be haunted by peculiar sprites, to whom sacrifices are to be offered. The animals, plants and stones produced in these mountains are named and described. The descriptions of trees and herbaceous plants in the *Shan hai king* contain much of the miraculous. Almost every plant or fruit is reported to have, when eaten, a peculiar effect upon the functions of the mind. But there occur in this ancient work about 70 names of plants which are still in use.

The 離騷 *Li sao*, one of the poetical productions of 屈原 K'Ü YÜAN, a minister of the Kingdom of 楚 Ch'u [about

B.C. 314]. It was translated into French, in 1870 by the Marquis D'HERVEY DE ST. DENYS. About 30 names of plants appear in the *Li sao*, and many of them refer to fabulous trees and herbaceous plants.

The 種植書 *Chung chi shu*, a treatise on husbandry by 氾勝之 FAN SHENG-CHI. Second half of the first century B.C. [See *Botan. sin.*, I, p. 76].

The 方言 *Fang yen*, a comparative vocabulary of synonyms used in the various feudal states of ancient China, by 楊雄 YANG HIUNG [B.C. 53-A.D. 18]. He is also styled 楊執戟 YANG CHI-KI. [Comp. *Botan. sin.*, I, No. 106.]

The 說文 *Shuo wen* is an ancient dictionary of the Chinese language, composed by 許愼 HÜ SHEN at the close of the first century of our era. In it the matter is found arranged according to the radical part of the character, under the head of 540 radicals. It contains about 10,000 characters, all written in the Lesser Seal. The pronunciation is vaguely given, and also concise remarks on the meaning. About 760 of these characters refer to plants, but the explanations furnished with respect to the names are for the most part unsatisfactory, *e.g.* 草名, 木名, name of a plant, of a tree, etc., or the name is defined by a synonym.

The 廣雅 *Kuang ya*, called also 博雅 *Po ya*, a kind of vocabulary or dictionary published in the third century [see *Botan. sin.*, No. 383]. It professes to be an enlargement of the *Rh ya*. The section on plants contains nothing but names and synonyms, without any explanation.

Among the numerous Chinese works on Botany there are four which the reader will find frequently quoted in my Notes on the classical plants, and which have already been treated of at length in the first part of my *Botanicon sinicum*.

The **救荒本草** *Kiu huang pen ts'ao* [*Botan. sin.*, I, p. 54–69], a treatise on plants available for use as food in time of scarcity, by a prince of the Ming dynasty, accompanied by wood-cuts, published towards the end of the 14th century. Abbrev. *Kiu huang.*

The **本草綱目** *Pen ts'ao kang mu*, the great Chinese Herbal and Materia Medica, published in the 16th century by Li Shi-chen. [See *Botan. sin.*, I, p. 54–69.] Abbrev. *P.*

The **廣羣芳譜** *Kuang K'ün fang pu*, or Chinese Thesaurus of Botany, published in 1708. [See *Botan. sin.*, I, p. 70.] Abbrev. *K.K.F.P.*

The **植物名實圖考** *Chi wu ming shi t'u k'ao*, a large work on Chinese plants, illustrated by numerous wood-cuts, published in 1848. [See *Botan. sin.*, I, p. 73.] Abbrev. *Ch.*

Of dictionaries, Chinese and Chinese-English, the following, to which frequent reference is made in my paper, may be noticed :—

The **康熙字典** *K'ang Hi tsz' tien*, a dictionary compiled and published by order of the Emperor Kang Hi in 1716. Abbrev. *K.D.*

Dr. Morrison, *Dictionary of the Chinese Language*, arranged according to the Radicals. 3 vols. 1822. Abbrev. *M.D.*

Dr. S. W. Williams, *A Syllabic Dictionary of the Chinese Language*. 1874. Abbrev. *W.D.*

EUROPEAN WORKS ON CHINESE BOTANY AND MATERIA MEDICA.

A. Tatarinov, M.D., *Catalogus Medicamentorum sinensium quæ Pekini comparanda et determinanda curavit.* 1856. [See *Botan. sin.*, I, p, 122.]

F. B. Forbes and W. B. Hemsley, *Index Floræ sinensis.* 1888. The work is not yet complete. It is a very important and useful publication.

Dr. A. Henry, "Chinese Names of Plants" [*Journ. China Br. R. Asiat. Soc.*, 1887]. A list of 566 Chinese plants, collected by Dr. Henry in the Province of Hupei, and determined at Kew, and of which the author has ascertained the Chinese names. A very valuable paper.

JAPANESE WORKS ON BOTANY, AND EUROPEAN AUTHORS ON JAPANESE PLANTS.

The *Phon zo dzu fu*, a Japanese work on Botany, with 1,795 coloured drawings, published in 1828. [See *Botan. sin.*, I, p. 100. Abbrev. *Phon zo.*]

The *So moku dzu setsu* is a similar work, published in 1856. Only 20 books of it have appeared, describing and depicting Japanese herbaceous plants; 1,215 drawings. [See *Botan. sin.*, I, p. 101.] Abbrev. *So moku.*

The *Kwa ei*, a Japanese Botany, published in the last century, illustrated with 200 woodcuts. There is a French translation of it by Dr. L. Savatier. [See *Botan. sin.*, I, p. 99.]

Nearly all the plants figured in the above-mentioned Japanese works have been botanically determined from these drawings by Mr. A. FRANCHET, and partly also by Mr. C. MAXIMOWICZ of the Botanical Garden, St. Petersburg. On the plates we find besides the Japanese names also the Chinese names of these plants, if such exist, in Chinese characters, and to these latter my frequent quotations of the Japanese works always refer.

Some years ago the "Home Department" in Japan published a description with drawings, admirably well executed, of 100 Japanese timber trees. Japanese and Chinese names given.

E. KÆMPFER's *Amœnitates exoticæ*. 1712. [See *Botan. sin.*, I, p. 125.] KÆMPFER describes more than 500 Japanese plants. Chinese names in Chinese characters generally added.

Dr. FR. von SIEBOLD, *Synopsis Plantarum œconomicarum universi Regni Japonici*. 1827. Chinese names of the plants in Chinese characters frequently given.

Dr. SIEBOLD's unpublished coloured drawings of Japanese plants, about 600, in the Botanical Museum of the Academy, St. Petersburg.

Dr. FR. von SIEBOLD and Dr. ZUCCARINI, *Flora japonica*. 2 vols., 1835–1870, with 150 coloured plates. [See *Botan. sin.*, I, p. 411.]

J. HOFFMANN et H. SCHULTES. *Noms indigènes d'un Choix de Plantes du Japon et de la Chine déterminés d'après les échantillons de l'herbier des Pays-Bas*. 1853. [See *Botan. sin.*, I, p. 127.] The Japanese and Chinese names are given according to the identifications made by SIEBOLD.

Dr. GEERTS. "Japanese Woods, with the Japanese and Chinese names added" [*Transactions of the Asiatic Society of Japan*, IV, 1875.]

CHAPTER I.

Plants mentioned in the 爾雅 *Rh ya*.

The *Rh ya*, of which an account has already been given in Part I, p. 34, is a relic of the Chou dynasty. It is the earliest Chinese attempt to compile a dictionary. The authorship is ascribed to 子夏 Tsz Hia, a disciple of Confucius. It is, however, believed that a part of the work was written by the famous Duke of Chou in the 12th century B.C. Tsz Hia was born B.C. 507 and lived to a great age, for we find him [B.C. 406] at the court of Prince Wen of Wei, to whom he gave copies of some of the classical books. [See Legge's *Classics*, I, Prol., p. 118.]

The *Rh ya* is a dictionary of terms used in Chinese classical and other ancient writings, the words being arranged in categories with regard to affinity of subjects. Its present shape dates from the third century of our era, when Kuo P'o, a celebrated scholar and commentator who lived A.D. 276-324, remodelled the matter and added commentaries. It is divided into 19 sections, of which seven (comprising about two thirds of the whole work) treat of natural objects—herbaceous plants, trees, insects, fishes, birds, quadrupeds and domestic animals. But the original text of the *Rh ya*, as far at least as natural objects are concerned, is generally nothing more than a list of names and synonyms. Some of the editions of the *Rh ya* are illustrated with plates, rudely executed cuts. As is stated in the preface, these drawings date from the Sung period, but they may have been based upon the woodcuts appended, as the ancient catalogues state, to Kuo P'o's edition of the *Rh ya*.[3]

[3] In 1882 a new edition of the *Rh ya*, in 12mo, was published at Shanghai. It is accompanied with the illustrations and is well printed.

The *Rh ya* is comprised in the above-noted great edition of the thirteen Classics, and appears there with the title 爾雅注疏 *Rh ya chu shu*—the *Rh ya* commented and explained. The character 注 refers to the commentary of 郭璞 Kuo P'o. For further particulars see *Botan. sin.*, I, 35.

The character 疏, which Legge translates by expositions, glosses and disquisitions, denotes the explanations by 邢昺 Hing Ping, a scholar of the Sung dynasty, who lived A.D. 932-1010.

Kuo P'o states in his preface that for his commentaries on the *Rh ya* he had made use of previous explanations. Hing Ping frequently quotes authors of the Han period who had attempted to explain this ancient dictionary. The earliest of these seems to have been 劉歆 Liu Hin, a celebrated author of the first century B.C. Hing Ping calls him 舍人 She jen, which seems to have been his pseudonym, but *she jen*, in the time of the Han, was also a title—secretary. As the names and synonyms in the *Rh ya* run in a continued series of characters without any break, it is sometimes difficult to decide how these names are to be separated. She jen was the first to indicate this division.

樊光 Fan Kuang and 李巡 Li Sün are likewise mentioned by Hing Ping as commentators of the *Rh ya* in the Han period. Regarding the first, we know that he was a man from 京兆 King chao and lived in the Posterior Han dynasty [A.D. 25-221].

孫炎 Sun Yen or 孫叔然 Sun Shu jan, who also commented upon the *Rh ya*, was a contemporary of Kuo P'o.

Both Kuo P'o and Hing Ping, in their explanations, occasionally refer to two ancient authors named 謝氏 Sie and 某氏 Mou. As their cognomina are not given (they are evidently considered as well known scholars) it is impossible to say who is meant; but there is some probability that the

former is 謝曼卿 SIE MAN-K'ING, of the first century of our era, who commented upon the *Shi* [LEGGE's *Shi king*, Prol., p. 11], and the other may be an author of the Han alluded to in LEGGE's *Shu king*, Prol., p. 19.

HING PING quotes frequently the 本草 *Pen ts'ao*, or Herbal, commented by 陶氏 T'AO. This is without doubt the work mentioned in the *Sui shu*, chap. 34, on Literature, with the title 陶弘景本草經集注 in 7 *küan*, or chapters, or the *Pen ts'ao king*, arranged and explained by T'AO HUNG KING. Regarding the latter, a distinguished physician, who lived A.D. 452-536, see *Botan. sin.*, I, p. 42. The *Pen ts'ao king* is the Herbal of the Emperor SHEN NUNG [*ibidem*, p. 27].

Four geographical names are of frequent occurrence in KUO P'O's commentaries. They refer to North and Middle China, viz. :—

江東 Kiang tung (east of the Great river) is the same as ancient 吳 Wu, comprising present Che kiang and extending north and west to the Yang tsz'.

江南 Kiang nan (south of the Great river). This is not the Kiang nan of the Ming period (the present provinces of An hui and Kiang su). The Kiang nan of KUO P'O's time answers to the present province of Kiang si.

關西 Kuan si (west of the Pass). The famous Pass 潼關 T'ung kuan at the elbow of the Yellow River, is meant, and Kuan si answers the present province of Shen si.

關東 Kuan tung (east of the Pass) is Shan si.

In the subsequent notices of the plants mentioned in the *Rh ya*, the names and synonyms are given in the same order as they are enumerated in the Chinese text. Each sentence is followed by a translation of KUO P'O's commentary and of HING PING's explanatory notes. KUO P'O generally indicates the pronunciation of the characters in the *Rh ya*, which frequently differs from the pronunciation given in modern Chinese dictionaries and WILLIAMS' Dictionary.

I.—釋草 Explanation of Names of Herbaceous Plants.

1.—薁 *Yü*; 山韭 *Shan kiu*, wild or mountain *Kiu* (*Allium*).

E., 55, family 韭.

韭 is also written 菲. *Li ki* also 豐. *Shwoh W.* 蘬. *H.* 74, 韭菜 *Allium tuberosum*, Reg.=*Allium odorum*, L.

A., XV, 178, *All. uliginosum*, Don & A.

H, 75, the wild species=*A. Thunbergii*, Don.

The notes inserted in the text are by the Rev. Dr. E. Faber. Lack of time has prevented a comparison of each figure in the Chinese works quoted with specimens of plants collected in China and identified at Kew, of which between three and four thousand species are in Dr. Faber's possession. It is to be regretted that the seats of ancient Chinese civilization along the Yellow River have not yet been botanically explored. Botanical investigations in China throw light on some difficult questions relating to Chinese antiquity. Here we need merely note the striking differences between the names of plants in the *Shi king* and the corresponding ones in the *Rh ya*. We must assume that an interval of several centuries separates these two works. To the difference between the pronunciation at the period about 300 A.D. and that of the present day, Dr. Bretschneider has alluded. It would be of great interest to learn what plants and trees were known and utilized at certain periods of Chinese history. An insight into the progress of Chinese civilization would by this means be gained.

The following abbreviations are used in the Notes :—

A. = *Journal of C. B. R. A. S.*
B. = Bowra's list of plants in Doolittle's *Handbook*.
C. = Customs' *List of Chinese Medicines*, 1889.
E. = Imp. Encyclopedia 古今圖書集成.
H. = Dr. A. Henry.
P. = *Pen ts'ao* 本草, Edit. in 52 small vols.
Pr.= Parker's *Names of Canton Plants*.
S. = *San ts'ai t'u hui* 三才圖會.
Sm.= Porter Smith, *Chinese Materia Medica*.

Quotations in the text are not repeated in the notes.

2.—蓇 *Ko*; 山葱 *Shan ts'ung*, mountain onion.

E., 56, family 葱 and synonym of it.

A., XV, 178, *Allium cepa*, L.

Allium fistulosum, cult. in N. Ch.

P., 26, 7. *S.*, X, 10. *Sm.* 7.

E. has five drawings, the second is *A. Vict.*

3.—薤 *King*; 山韮 *Shan hiai*, mountain *hiai*. [Comp. *infra*, 63.]

E., 55, family 蓯.

King and *hung hui* [*v. infra*, 63] are given as synonyms.

W.D., 188, *Allium ascalonicum.*

S., X, 12. *P.*, 26, 15.

4.—葫 *Li*; 山蒜 *Shan suan*, mountain garlic.

Kuo P'o says:—The above (four) vegetables nowadays abound in the mountains. They look like the respective cultivated plants. The 蓇葱 *Ko ts'ung* has a tender stalk and large (broad) leaves.

Hing Ping observes that the *Shuo wen* explains the characters *kiu*, *ts'ung* and *hie* by "vegetables." *Yü* (1) according to the Han text of the *Shi king*, is the same as the 薆 in the *Shi king* [*v. infra*, 474].

The figures in the *Rh ya* representing the above-named plants (1–4) are no doubt intended for *Allia*. Regarding the cultivated *Allia*, *v. infra* 357-360.

With respect to the characters *king* (3) and *li* (4) compare also *Rh ya*, 17 and 98, where they are applied to other plants.

In the *Kiu huang*, LIX, 5, is found a good drawing of the *Allium Victorialis*, L., showing the characteristic elliptical leaves, with the Chinese name 山葱 *Shan ts'ung* or 隔葱 *Ko ts'ung* (the first character stands evidently for 蓇 *ko*). The same drawing is reproduced in the *Ch.*, V, 19. [comp. also *P.*, XXVI, 13, *So moku*, VI, 29. *Allium Victorialis* is a common plant in the Peking mountains.]

E., 57, family 蒜.

A., XV, 178, *Allium sativum*, L.

S., X, 20. *P.*, 26, 18. *Sm.*, 7.

5.—薜 *Pi (po)*; 山 蘄 *Shan k'in*, mountain *k'in* (now pronounced *k'i*). The drawing in the *Rh ya* represents an umbelliferous plant.

Kuo P'o :—The *Kuang ya* says that *Shan k'in* is the same as the 當歸 *Tang kui*, but the latter plant is coarser and larger, it only resembles the *k'in*.

Hing Ping :—The *Shuo uen* explains the character *k'in* by *ts'ao*, a plant. The mountain *k'in*, called also 白蘄 *Pai k'in* (white *k'in*), is distinguished from the *k'in* of the plains by its white colour. [See also *infra*, 49.]

The *P.*, XIV, a. 1, identifies the *Pai k'in* and the *Shan k'in* with the *Tang kui*, an aromatic plant the root of which is much esteemed by the Chinese as a medicine. The rough drawing of the *Tang kui* in the *Ch.*, XXV, 14, seems to represent an umbelliferous plant.

So moku, V, 5, sub. 當歸 *Ligusticum acutilobum*, S. et Z., according to Maximowicz ; same as *Apium ternatum* with the same Chinese name in Siebold, *Syn. plant. aeon. jap.*, 246. *Herba edulis ac medici usus.* This umbelliferous plant is also known from Formosa [*Index Flora sin.*, 332] ; probably it occurs also in China proper and may be the *Tang kui* of the Chinese Pharmacopœia, which drug Tatarinov in his *Catal. med. sin.*, 19, supposes to be yielded by *Levisticum chinense*? [See my *Early Europ. Res. into the Flora of China*, p. 31.]

E., 132, family 當歸.

S., II, 25, two kinds. *P.*, 13 *a*, 28.

The two drawings in *E.* are copies from *S.*

Sm., 20, 133, *Aralia edulis* and *Levisticum*.

C., 1250. The Sze chwan *Tang-kuei* is the root of an *Umbellifer* not yet determined ; that from the North may be derived from *Ligusticum acutilobum*, S. & Z. ; that imported into Shanghai from Japan is the root of *Aralia cordata*, Thbg.

6.—椴木 *Tuan mu* [some editions of the *Rh ya* write 椵 *kia* instead of tuan, *v. infra* 226, 229], 槿槐 *Kin ch'en*, 木槿 *Mu kin*.

Kuo P'o :—Two names for the [common] *mu kin*. It is a tree resembling the plum. Its flowers expand in the morning and fall off in the evening. They can be eaten. It is also called 日及 *Ji ki* and 王蒸 *Wang cheng*. Hing Ping quotes the *Shi king* and *Li ki* [*v. infra*, 542].

Mu kin is a common name for *Hibiscus syriacus*, which is tolerably well represented under the above names in the *Rh ya*. *Tuan* is nowadays in Northern China a name applied to the Lime tree, *Tilia*.

E., 295, family 木槿.

As a synonym 舜 of the *Shi king*. [*v. infra*, 542.]

P., 36, 64. *C.*, 858. *A.*, XV, 125. All agree.

7.—虎 *Shu*; 山薊 *Shan ki* (mountain thistle).

Kuo P'o :—A thistle which grows in the mountains. [*See the next.*]

8.—羊桴 *Yang fu*; 薊 *Ki*.

Kuo P'o :—It resembles the *ki* (thistle) but is fat (succulent) and larger. It is now called 馬薊 *Ma ki* (horse's thistle).

Hing Ping [referring to 7 and 8]:—The name of *ki* (thistle) is applied to a plant growing on the plain. That variety which grows on the mountains is called 虎 *shu*. The *Pen ts'ao* says one name is 山薊 *Shan ki* (mountain thistle), another 山薑 *Shan kiang*, another 山連 *Shan lien*. Tao Hung-king [5th century] explains that there are two kinds, the 白虎 *Pai shu*, white *shu* with large hoary, not very fat (fleshy) leaves, and the 赤虎 *ch'i* (red) *shu*, with small leaves, bitter, fleshy. [Comp. *infra*, 159.]

The 虎草 *shu ts'ao* is also mentioned in the *Shan hai king*. Kuo P'o explains the name by *shan ki* (mountain thistle).

P., XII, b, 4, *shu* or *pa shu*, and fol. 9 蒼虎 *ts'ang shu* or *ch'i shu*, medicinal plants, roots used in medicine. The *Ch.*, VII, 9. sub. *shu*, figures an *Atractylis*, a prickly-leaved thistle-like plant of the composite family, and the figures

in the *Rh ya* for 7 and 8 seem to intend the same plant. [See also *Kiu huang*, LI, 8.]

In the *So moku*, XV, 50, 白 朮 is *Atractylis ovata*, Thbg., and 51 蒼 朮 *A. lancea*, Thbg. But these species, founded upon the form of the leaves, which are very variable in shape, are now reduced to one species. *A. chinensis*, D.C., is also the same plant, which is very common in the Peking mountains. [Comp. HANBURY'S *Science Papers*, p. 255.]

The *P.* considers 7 and 8 of the *Rh ya* to refer to the same plant.

E., 102, family 朮.
Figures of eight different kinds.
S., 1, 8, three kinds. *Sm.*, 28.
C., 961, 1167, 1330.

9.—蕳 *Tsien*; 王 彗 *Wang sui* (royal besom).

KUO P'O:—Same as 王 帚 *wang chou* (royal besom). It resembles the 藜 *li*. Brooms are made of it. In Kiang tung they call it 落 帚 *lo chou*. Regarding the *li* plant, *Chenopodium album*, L., *v. infra*, 446.

The *P.*, XVI, 44, identifies the *Wang sui* with the 地 膚 *ti fu* or 掃 帚 草 *sao chou ts'ao*, or broom plant, which is the *Kochia scoparia*, Schrad., a *Chenopodiacea* common in Northern China and used there for brooms as in Southern Europe.

Under the same Chinese names it is figured in the *Ch.*, XI, 31; in the *Kiu huang*, XLVII, 7, and in the Japanese *So moku*, IV, 41. The drawing in the *Rh ya* referring to 9 may well be intended for *Kochia*.

E., 138, family 地 盧 and 114, family 懸 鉤 子. The figure of the latter is not a Chenopod, but may be a *rubus.*, comp. *P.*, 18, 11, and *infra*, 127. *Ti fu*, see *S.*, II, 8; *Sm.*, 128; *C.*, 1263, which all agree.

10.—菉 *Lü*; 王 芻 *Wang ch'u* (royal grass).

KUO P'O explains:—菉 蓐 *lü ju*, also called 鳧 脚 莎 *Chi kio so* (owl's-foot sedge).

HING PING, 某氏, says 菜鹿蒥 *lü lu ju*. *Shi king* quoted. [*v. infra*, 461.] Drawing in the *Rh ya* a grass.

E., 107, family 涉. [*v. infra*, 97, 457]

Shi king, 薹 [*v. infra*, 73], is given as a synonym.

11.—拜 (also written 蕆 *Pai*), 蔏蒩 *Shang t'iao*.

KUO P'O:—It resembles the *li*. [*v. supra*, 9, *Chenopodium*.]

HING PING:—It resembles the *li*, but the leaves are larger. In 莊子 CHUANG TSZ [philosopher, 4th century, B.C.] the name of a plant *li t'iao* is found. [*v. infra*, 446.]

The above names in the *Rh ya* refer probably to a *Chenopodium*. At Peking 灰藋菜 *hui t'iao ts'ai* is *Chenopodium album*, L. [Comp. *P.*, XXVII, 28; *Ch.*, IV, 39; *Kiu huang*, LIX, 30. See also *infra*, 446.]

E., 63, family 藜.

Synonym 菜. *Shi king*. [*v. infra*, 445.]

12.—蘩 *Fan*; 皤蒿 *P'o hao*.

KUO P'O:—Same as 白蒿 *pai hao* (White Artemisia). [Comp. *infra*, 433.]

E., 62, 5, family 蒿, sub family 白蒿.

Fan is from the *Shi king*.

H., 108, *A. vulgaris*, L.

13.—蒿 *Hao*; 鼓 *Shen* (pronounced also *kien*).

KUO P'O:—Now the people call it 青蒿 *ts'ing hao*. It is fragrant They employ the plant for cauterizing. It can also be eaten.

SUN YEN (quoted by K'UNG YING-TA) says:—In 荊 *King* and 楚 *Ch'u* (pres. *Hu kuang*) the *hao* (Artemisia) is called *shen*. [Comp. *infra*, 431, *Artemisia*.]

E., 62, 1, family 蒿, sub. family 青蒿.

A., XV, 158, 草蒿 is the same=*A. annua*, L.

The Japanese drawing *Mao Shi*, 1, differs.

H., 109, 臭蒿. In North China 香蒿.

14.—蔚 *Wei*; 牡菽 *Mou shen* (male shen).

KUO P'O:—It has no seeds.

HING PING, referring to 12–14, explains:—Various sorts of *hao* (Artemisia), variously coloured, with seeds or without seeds. Quotes the *Shi king*. [Comp. *infra*, 432.] The figures for 12–14 in the *Rh ya* may well represent various species of Artemisia.

E., 62, 15, sub. family 牡蒿.
Wei is from the *Shi king*.
H., 110, *A. japonica*, Thbg.

15.—蔫 彫 蓬 *Ye tiao p'eng*; 薦 黍 蓬 *Tsien shu p'eng*.

KUO P'O:—A kind of *p'eng*.

HING PING:—According to the *Shuo wen*, 蓬 *p'eng* is a kind of *hao* (Artemisia). Quotes the *Shi king* and the *Yüe ling*. [Comp. 436.] The figure in the *Rh ya* for 15 seems to intend an Artemisia. But the *P.*, XXIII, 15, refers the above names of the *Rh ya* to *Hydropyrum*. [*v. infra*, 350.]

E., 104, family 蓬.
Ye, tiao p'eng, tsien and *shu p'eng* are four synonyms. The figure represents an *Aster*.

16.—蒘 *Pi*; 鼠 莞 *Shu kuan* (rat's rush).

KUO P'O:—This is a kind of *kuan* (rush, *see* 98). It has fine fibres like the 龍 須 *lung sü*, and is fit for making mats. The best is found in Shu (Sz' ch'uan).

HING PING:—The *Shuo wen* says that the *kuan* is a grass of which mats can be made.
The drawing in the *Rh ya* for 16 represents a grass.
[*v. infra*, 455.]

E., 176, family 石 龍 芻.
Without figure. Matting grass, the best coming from Sze-chuan.

17.—蓑 *King*. [Comp. *supra*, 3]; 鼠 尾 *Shu wei* (rat's tail).

KUO P'O:—It furnishes a black dye.

HING PING:—The *Pen ts'ao* says that there are two kinds of this plant, one of them with white, the other with red flowers. It is also called 長 翹 *ch'ang k'iao*. T'AO HUNG-

KING reports that this plant grows abundantly in waste places. The people gather it and employ the juice in dyeing. This is the 木藍 *mu lan*.

P., XVI, 62, sub. *shu wei ts'ao*. LI SHI CHEN states that it is also known under the name of 烏草 *wu ts'ao* (black plant), for its leaves and flowers are much used for dyeing a black colour. Spikes similar to those of the 車前 *ch'e ts'ien* (*Plantago*). There are two kinds, with white or red flowers. One author says that the flowers are purple or violet.

The plant figured in the Japanese *So moku*, 1, 29–31, sub. 鼠尾草, is *Salvia japonica*, Thbg. [See also *Kwa wi*, 20.] The rough figure under the same Chinese name found in the *Kiu huang*, XLVI, 28, which is reproduced in the *Ch.*, XIV, 12, may well represent a *Salvia*.

E., 168, family 鼠尾.

The figure may be of *Salvia plebeia*.

18.—荠苨 *Si mi* (now pronounced *ming*); 大薺 *Ta tsi* (the great *tsi*).

KUO P'O:—It resembles the *tsi* (which is *Capsella bursa pastoris*. V. *infra*, 103). It has smaller leaves, and is commonly called 老薺 *lao tsi* (old *tsi*).

HING PING:—Other names for this plant, given in the *Pen ts'ao*, are 蔑荠 *mie si*, 太菩 *t'ai ts'i*, 馬辛 *ma sin*.

The *P.*, XXVII, 5, says that the *si ming*, or *ta tsi*, is nearly allied to the *tsi* (*Capsella bursa pastoris*), but larger and not so palatable.

In the Japanese *Phon zo*, XLVIII, 8–10, the Chinese name 荠苨 is applied to *Thlaspi arvense*, L. (the *Thlaspi majus* of TABERNÆMONTANUS), also to *Lepidium sativum*, L. The plant figured under the above name in the *Ch.*, III, 14, is *Capsella b. p.*, whilst *Thlaspi arvense*, in the *Kiu huang*, LVIII, 8, as well as in the *Ch.*, V, 4, and in the *So moku*, XII, 3, bears the Chinese name 遏藍菜 *O lan ts'ai*. The silicles of the plant are compared by the Chinese authors to

the seed-vessels of the elm. [*See also* SIEBOLD, *Syn. plant. æcon. jap.*, 285.] *Capsella b. p.* and *Thlaspi arvense* are common Chinese plants.

E., 60, family 荪 葉 and family 薺.

The name *si mi* also occurs *E.*, 271, as a synonym of 蘇

19.—蓷 *T'u*; 虎杖 *Hu chang* (tiger's cane). Comp. 150.

KUO P'O:—It resembles the 紅草 *hung ts'ao* (*Polygonum orientale*, L. *v. infra*, 102), but is coarser and larger and is provided with small prickles. Used for dyeing a red colour.

HING PING:—T'AO HUNG-KING says that according to the *Pen ts'ao* this plant grows abundantly in waste places. It has the appearance of the 大馬蓼 *ta ma liao* (great horse's *Polygonum*). Spotted stem, round leaves.

In the *P.*, XVI, 83, this plant is described as a *Polygonum*, the leaves of which resemble those of the apricot. Stem covered with spots, wherefore the plant is also called 斑杖 *pan chang*, variegated cane.

Ch., XI, 91; Bad figure. *So moku*, VII, 78, 虎杖, *Polygonum cuspidatum*, S. et Z. In China the above Chinese name seems to be applied to another species of *Polygonum*.

E., 104, gives 蓷 as a synonym of 荼 [*v. infra*, 24, 150, 209].

E., 164, family 虎杖 contains three figures of very distinct plants, reproductions of *S.*, IX, 39, but the name 蓷 does not appear. None of the figures give an idea of *P. cuspidatum*, which is also without prickles.

20.—蓋 *Meng*; 狼尾 *Lang wei* (wolf's tail).

KUO P'O:—It resembles the 茅 *mao* (a grass, *Imperata*. *v. infra*, 459). The people use it for thatching roofs.

Comp. *infra*, 462, *Gymnothrix*.

E., 106, family 稂. [*v. infra*, 189].

The character 蓋 is taken from the dictionary *Yü p'ien*. Most *Rh ya* editions have 孟, but 蓟 *yu* is preferable, as in *E. P.*, 23, 14. *B.*, 狼尾草 *Scirpus cyperinus*, Kth. The figure in *E.* is of a graminea.

The figure in *Rh ya* has the character 浪 for 狼.

21.—瓠 棲 *Hu si*; 瓣 *Pan*.

Kuo P'o explains, 瓠中瓣, which Legge [*Shi king*] translates "the section of a melon," but it seems rather to mean the pulp of a calabash, or melon. The character *pan* is thus defined in the *Shuo wen*.

Hing Ping quotes the *Shi king*. [*v. infra*, 384.]

The corresponding drawing in the *Rh ya* represents a calabash.

E., 47, family 瓠.

For 棲 the *Shi king* has 犀. Not the pulp is meant but the kernels, "Teeth like melon kernels." Calabash is more correct than melon, according to the figure in *E.* [*v. infra*, 384].

22.—茹 藘 *Ju lü*; 茅 蒐 *Mao shou*.

Kuo P'o:—Now it is called 蒨 *ts'ien* and used for dyeing a dark red (絳) colour.

Hing Ping quotes the *Shi king*. [*v. infra*, 393.]

The plant 蒐 *shou*, mentioned in the *Shan hai king*, is, according to Kuo P'o's explanation, the same as *mao shou*.

According to Li Sün, quoted by K'ung Ying-ta, *mao shou* is the same as 茜 *ts'ien*, *Rubia cordifolia*, L. The *Shuo wen* says that this plant grows from human blood.

E., 104, family 茜.

The figure is the same as in *S.*, II, 4, and bad.

P., 18 *b*, 19.

The name *ju lü* is from the *Shi king*.

One synonym, mentioned in *E.*, is 地 血 Earth-blood.

23.—果 蠃 之 實. The fruit of the *kuo lo* is called 栝 樓 *Kua lou*. Figured a cucurbitaceous plant with a globular fruit.

Kuo P'o:—Nowadays the people in 齊 Ts'i (Northern Shan tung) call it 天 瓜 *t'ien kua* (heavenly gourd).

Hing Ping observes that according to Li Sün's explanation *kuo lo* means properly not the whole fruit, but the seed only. The *Pen ts'ao king* states that the leaves of this plant

resemble those of the *kua* (gourd or melon); they are of a dark green colour. It is a trailing plant, and flowers in the 6th month; in the 7th month it produces a gourd-like fruit.

This is a *Trichosanthes*. [*v. infra*, 385.]

E. 151, family 栝 樓 (*see* 310, family 無 患 子, *Sm.* 43, 221, *Bryony, Trichosanthes*).

Kuo lo **is from the *Shi king*.**

Among the synonyms is **黃 瓜**, but the figure is of a gourd, not of ***Cucumis sativus*, L.**

E., 170, family **白 藥 子**. *A.*, XV., 153, *Trichosanthes palmata*, Roxb., also called **天 花 粉**. Comp. *Sm.*, 222.

24.—荼 *T'u*; 苦菜 *K'u ts'ai* (bitter vegetable).

Kuo P'o quotes the *Shi king* [*v. infra*, 365] and says that the *k'u ts'ai* is used for food.

Hing Ping:—In the *Pen ts'ao* it is also called 遶 *süan* and 游冬 *yu tung*. Its leaves resemble those of the 苦苣 *k'u kü* (*Lactuca*) but are smaller; if broken they exude a milky juice. Yellow flowers, resembling those of the *kü* or *Aster*. The plant is edible, but it has a bitter taste.

This is a *Sonchus* or a *Lactuca* [*v. infra*, 365], which accords with the drawing given in the *Rh ya*.

E., 59, family 荼, the figure=*S.*, X, 38, *Lactuca denticulata*, Max.

荼, 苦 and 苣 occur in the *Shi king* and are synonyms; *k'u ts'ai v. Li ki*. *K'u kü* is also a synonym of later date.

Another synonym is 苦 蕒 *v. S.*, X, 38. *Sm.* 62. *Cichorium*.

A., XV, 160, *Cichorium Endivia*, L.

H., 189, *Lactuca squarrosa*, Miq.

Lactuca amurensis, Reg., and sometimes at Ichang *Taraxacum officinale*, Wg.

P., XXVII, 14.

In Japan *k'u ts'ai* is determined as *Sonchus oleraceus*, L.

山 苦 蕒 as *Lactuca Raddeana*, Max.

萵 苣 as *Lactuca sativa*, L.

山 萵 苣 as *Lactuca squarrosa*, Miq.

K'u ts'ai is given as a synonym in *E.*, 129, family 貝母 [*v. infra*, 75] also *E.*, 161, family 苦蘵 [*v. infra*, 144] and *E.*, 164, family 龍葵 [*v. infra*, 79, 182].

T'u is quoted from the *Shi kin'* as a synonym in *E.*, 103, family 茅 [*v. infra*, 48, 188 and *supra*, 20], and *E.*, 104, family 荼, from the *Chou li* [*v. supra*, 19, *infra*, 150, 209].

25.—萑 *Kia* (perhaps *ch'ui*); 藾 *Lei* (*t'ui* or *chui*, *W.D.* 926).

Kuo P'o:—This plant is now called 茺蔚 *ch'ung wei*. Its leaves resemble those of the 荏 *jen* (*Perilla*). Square stem. White flowers arranged on the joints (in whorls). Another name is 益母 *i mu*, according to the *Kuang ya*.

Hing Ping:—Li Sün calls this plant 臭穢草 *ch'ou wei ts'ao* (stinking weed). Mentioned in the *Shi king*. [*v. infra*, 444.]

The plant in question is *Leonurus sibiricus*, L., which, however, has red, not white flowers as Kuo P'o suggests. The drawing in the *Rh ya* agrees.

E., 129, family 益母, the figure is not of *Leonurus sibiricus*, but may be of *L. macranthus*, Max., which has the same Chinese name in Manchuria.

P., 15, 24. *Sm.*, 132. *C.*, 550. *Pr.*, 231. *Kia*, *v. Shi king*.

Lycopus lucidus, Turcz, is also called *I mu* in Manchuria, this has white flowers, and occurs also in the Central and Northern Provinces of China.

26.—蘾 *Ni* (read also *i*); 藪 *Shou*.

Kuo P'o:—A small herb, variegated like a ribbon (綬).

Hing Ping quotes the *Shi king*. [*v. infra*, 454, Ribbon grass, *Phalaris* ?.] The figure in the *Rh ya* does not agree.

W.D., 1098. *E.* not found.

27.—粢 *Tsz'*; 穄 *Tsi*.

Kuo P'o:—The people in Kiang tung now apply the term *tsz'* to the 粟 *su*. (*Su*, it seems, is here to be understood as a general name for corn, *v. infra*, 343, 347).

HING PING quotes the *Tso chuan* and the *Li ki*. [*v. infra*, 343, *Panicum miliaceum*, L.]

The corresponding figure in the *Rh ya* seems to represent *Setaria*.

E., 29, family 稷, the figure represents a Panicum; 黍子 is its popular name.

28.—衆 *Chung*; 秫 *Shu*.

KUO P'O:—Same as the 黏粟 (glutinous *su* or *Setaria italica*).

HING PING quotes the *Shuo wen*, where it is stated that the *shu* is a glutinous form of the *tsi* (*Panicum miliaceum*). The people in Northern China use it to ferment liquors. The figure in the *Rh ya* seems to refer to *Setaria*. [*v. infra*, 348.]

E., 25, family 稻, the figure, if intended for rice, is bad.

Shu is mentioned as a synonym.

E., 31, family 秫, figure a *Panicum*, possibly *P. italicum*.

Chung is placed below *shu*.

In Japan six *Panica* bear Chinese names: *P. frumentaccum*, Roxb. 穭; *P. italicum*, L. 粱; *P. Germanicum*, Trin. 粟; *P. miliaceum*, L. 稷; *P. sanguinale*, L. 馬唐; *P. viride*, L. 狗尾草.

29.—戎叔 *Jung shu* is the same as 荏菽 *Jen shu*.

KUO P'O:—This is the plant called 胡豆 *Hu tou* (foreign bean).

HING PING:—FAN KUANG as well as SHE JEN and LI SÜN all explain the above names of the *Rh ya* by *hu tou*. But they were mistaken. As *jung* is likewise a term for foreigners [western barbarians] they concluded that *jung shu* and *hu tou* are the same. CHENG HÜAN and SUN YEN identified the *jung shu* correctly with the 大豆 *ta tou* or great bean. [Comp. *infra*, 355, *Shi king*.]

The *ta tou* is the *Soja hispida*, Mœnch, or soy bean. The *hu tou*, or foreign bean, is the *Faba sativa*, or common bean, one of the cultivated plants introduced from Western Asia

into China, in the second century B.C., by the famous general CHANG K'IEN.

Figure of the *jung shu* in the *Rh ya* a leguminous plant.

E., 36, 12, family 豆.

Both *Jung shu* and *Hu tou* are given as synonyms of 豌豆. *W.D.*, 1038, says, "probably the *lablab?* The figure points to a *Vicia*. *Sm.*, 172, *Pisum arvense*.

E., 35, 12, family 豆, speaks of 大豆, the figure if meant for *Soja hispida*, Moench, [now *Glycine hispida*, Max.] is disfigured. 白豆, of *Parker*, 46, is distinguished in *E.*, 36, 11, as a synonym of 飯豆, comp. *P.*, 24, 1, and 24, 17. *Sm.*, 88.

In Japan *Hu tou* is *Indigofera decora*, Ldl.; *Wan tou*, *Pisum sativum*, L.; *Ta tou*, *Glycine hispida*, Max.

30.—芣 *Hui*; 蕿 *Ts'ao*.

KUO P'O says it is a general name for herbaceous plants.

HING PING:—The term 百芣 *po hui* occurs in the *Shi king*. [*v. infra*, 402.]

31.—莞雀弁. Unknown to the Chinese commentators.

32.—薥 *Yo* 雀麥 *Tsio mai* (bird wheat).

KUO P'O:—Same as 燕麥 *Yen mai* (swallow wheat).

HING PING:—According to the *Pen ts'ao* it grows in waste places and forests. The plant resembles wheat but is more slender. The grain resembles the 穬麥 *kung mai* (naked barley) but is smaller.

P., XXII, 26. Figured *Ch.*, I, 31. *Kin huang*, LII, 1. *Phon zo*, XL, 10, 11 sub. 雀麥 represents various gramineous plants.

E., 32, 20, 21, family 麥.

The figures given of *Tsio mai* and of *Yen mai* are distinct species.

Jap., 380, determines the first as *Bromus japonicus*, Thbg., and the other, 371, as *Brachypodium sylvaticum*, Roem. & Schult.

Sm., 157, Oat.; differs from the figures, but I received this name for *Avena fatua*, L., from Ningpo.

33.—壞烏蓏菜; 兎芟蘩; 兎葵. All unknown to the Chinese commentators.

34.—蒬 *Yen* 菟瓜 *T'u kua.*

Kuo P'o :—It resembles the 土瓜 *t'u kua* (earth gourd).

Hing Ping :—The leaves and the fruit resemble those of the *t'u kua*, which is the same as the 王瓜 *wang kua* (royal gourd) mentioned in the *Yue ling.* [*v. infra*, 386, *Thladiantha dubia, Bge.*]

Some of the ancient authors quoted identify the *yen* with the plant mentioned *Rh ya*, 152, *q.v.*

35.—蒯蘸 *Lie chen*; 豕首 *Shi shou* (pig's head).

Kuo P'o :—In the *Pen ts'ao* this plant is also called 彘顱 *chi lu* (pig's head) and 蟾諸蘭 *shan chu lan.* In Kiang tung it is now commonly called *shi shou* and employed in boiling the pupa of the silkworm [to kill it].

Hing Ping :—A medicinal plant. In the *Pen ts'ao* it has, besides the names already mentioned, the following names: 天名精 *t'ien ming tsing*, 麥句薑 *mai kü kiang*, 蝦蟇蘫 *hia ma lan*, 王門精 *wang men tsing.* According to the *Pie lu*, it is fragrant and known also under the name of 天蔓精 *t'ien man tsing.* The southern people call it 地菘 *ti sung* (earth cabbage). Its taste is sweet and bitter. It resembles the 藍 *lan* (indigo plant).

In the *P.*, XV, 68, this plant is noticed under the name of 天名精 *t'ien ming tsing* with the above synonyms. It is said to have small, fragrant, yellow flowers resembling the *kü* flowers (*Aster, Chrysanthemum*).

In the *So moku*, XV, 62, under the name of 天名精, is a drawing of *Carpesium abrotanoides*, L., (*Compositæ*), which agrees well with the figure given under the same Chinese name in the *Ch.*, XI, 16,

E., 174, family 天名精. The figure apparently from *S.*, II, 2, not good. *Sm.*, 12, *Amarantus tristis* is doubtful. *Carpesium abrotanoides*, L., can also not be accepted exclusively, for among the 23 synonyms we find 豨薟, *S.*, IV, 34, *P.*, XV, 72, which is *Siegesbeckia orientalis*, L. according to B., *C.* 395, *A.*, XV, 70 and *Jap.*, 2078. [Comp. *E.*, 167.]

36.—莽 *P'ing*; 馬帚 *Ma chou* (horse's besom).

Kuo P'o:—It resembles the 蒉 *shi* (*Ptarmica sibirica*), and is fit for besoms.

Hing Ping says that the plant is commonly called 蒉莽 *shi p'ing*. The *P.*, XV, 57, refers the above names to an *Iris*. [*v. infra*, 467.]

E., 138, family 地膚.

This is a synonym of 蒿 [*supra*, 9].

37.—蘠; 懷羊. Unknown to the Chinese commentators.

38.—菱 *Kiao* 牛蘄 *niu k'in* (*k'i*).

Kuo P'o:—It is now called 馬蘄 *ma k'in*. It has small pointed leaves resembling the leaves of the 芹 *k'in* (Celery, also *Œnanthe stolonifera*). It can be eaten.

Hing Ping:—A vegetable. Seeds used in medicine. The *Pen ts'ao* says that this plant grows in marshes. It resembles the 鬼鍼 *kui chen* ("devil's needle," Bidens) and also the 蒝菜 *t'ien ts'ai* (*Beta*). Flowers of a light green colour, seeds dark yellow, resembling those of the 防風子 *fang feng tsz* (*Stenocœlium*, *Umbellifera*).

P., XXVI, 61, *ma k'in*. Figure in the *Ch.*, III, 44, an umbelliferous plant.

E., 65, family 芹 [*v. infra*, 116].

The synonyms given to 38 and 116 are all united, *E.*, 65.

Stenocœlium is *Siler divaricatum*, Bth. [*v.* Index *Fl. S.* p. 332.]

39.—葽 *tu* 蘆 蒑 *lo* (*lu*) *fei* (*pei*).

Kuo P'o:—The character 蒑 stands for 蒑 *fu*. The *lo fei* or *lo fu* is akin to the 蕪菁 *wu tsing* (Rape), but has violet flowers and a great (long) root. Its common name is 雹葽 *po t'u*.

HING PING:—SUN YEN calls it 紫花菘 *tsz' hua sung* (cabbage with violet flowers). Another name is 溫菘 *wen sung*. Large root. Now its common name is 蘿蔔 *lo p'o*.

In the *Fang yen* the same plant is compared to the 芥 *kiai* (mustard plant) from which it is distinguished by its violet flowers. In Eastern 魯 Lu (Shan tung) it is also known by the name of 菈薽 *la t'a*. The commentary adds that its seeds are as large as small beans.

The plant here spoken of is the Radish, *Raphanus sativus*, L. It has violet flowers and large seeds; its common name is nowadays 蘿蔔 *lo p'o*, which appears first in Chinese books in the 9th century. In the KUANG YÜN Dictionary, which was compiled in that period, it is stated that this name was in use in the State of 秦 *Ts'in* (Shen si, Eastern Kan su). In the *T'ang Pen ts'ao*, published two centuries earlier, we first meet with another name for the radish, 萊服 *lai fu*. Under this name it is described by LI SHI-CHEN in the *P.*, XXVI, 41, and figured *Ch.*, IV, 15.

In KÆMPFER'S *Amæn. exot.*, 823, Japanese plants, we read 萊服 *Rai fuku*, vulgo "*Daikon*," *Raphanus major orbicularis vel radice permagna oblonga*. With the same Chinese name the radish is figured in the *So moku*, XII, 27, 28.

As the radish is mentioned in the *Rh ya* it may be assumed that it has been cultivated in China from remote antiquity. From China its cultivation spread over the neighbouring countries, where the people generally adopted also the Chinese name of the plant. The Anamese and Malay call it *lobac*. (See LOUREIRO'S *Flora cochin.*, 481; WATSON'S *Native and Scient. Names of Eastern Asiat. Plants.*) In Tibetan it is *la phug* (JÆSCHKE, *Tibet. Dictionary*); in Mongol and Kalmuck *lao pang*, *lo bin*, but also *turma*. The latter name is, it seems, derived from the Persian appellation *turup*, used to designate the radish.

E., 70, family 蘿蔔, four different plants are figured, among them *Raphanus sativus*, a *Crucifera* and *Daucus carota*, an *Umbellifera*. The third plate is doubtful. *H.*, 251, says that *Shan lo po* is a common name for *Phytolacca acinosa*, Rox. The figure, showing a turnip-like root and large digitate leaves, must be intended for something else. There are 20 synonyms enumerated.

Pr., 88. *C.*, 688 and 751.

A., XV, 137, *Sm.*, 223.

40.—滇 灌 unknown to the Chinese commentators.

41.—茜 *Siu*; 芝 *Chi*.

Kuo P'o :—The *chi* flowers three times in one year. It is a felicitous plant.

Hing Ping :—The *Lun heng* [first century] says that the *chi* grows in the ground and absorbs the vapours of the earth. It is therefore considered a felicitous plant. The 禮 *Li* says, "when the ruler is charitable, then the *chi* grows."

I have not been able to find Hing Ping's quotation in the *Li* classics, but a similar sentence is found in the *Shui ying t'u ki* [6th century] quoted in the *K.D.* The *Shuo wen* defines 芝 by 神草, "divine herb." Williams, in his *Dictionary*, 811, makes *siu chi* to be one name, designating a gynandrous plant. The text of the *Rh ya*, however, gives *siu* as a synonym of *chi*, regarding which Williams, 53, correctly states that it is a Fungus. The corresponding figure in the *Rh ya* seems to represent a branching Fungus, the 靈芝 *ling chi*, or felicitous *chi*, which is sold in the Peking apothecary shops. It is orange coloured, of a ligneous structure and branched. The *ling chi* has been figured and described by Father Cibot under the name of *Agaric ramifié*, in the *Mémoires conc. les Chinois*, IV, p. 500. [*See also* Grosier, *la Chine*, III, 256.]

The *P.*, XXVIII, 35, identifies the *ling chi* with the 石耳 *shi rh* (stone mushroom) but gives no details about it.

Amæn. exot., 832, 芝 *naba*, *i.e.*, *Fungus campestris esculentus*. THUNBERG, *Flora japon.*, 347, identifies this with *Agaricus campestris*.

In the *Li ki* the *chi* is mentioned as an article of food. [*v. infra*, 380.]

E., 48, family 芝. One figure of a *Boletus* and 66 names.

S., VII, 6. *P.*, 28, 22. *Sm.*, 175. *Polyporus igniarius*. [*v. infra*, 161.]

42.—筍 *Sün*; 竹萌 *Chu meng* (bamboo-sprouts). Drawing in the *Rh ya*, bamboo sprouts.

KUO P'O explains:—The bamboo just sprouting forth.

HING PING:—SUN YEN says, bamboo-sprouts are called *sün*, and used as a vegetable. *Shi king* quoted. [*v. infra*, 273.]

43.—簜 *T'ang*; 竹 *Chu* (bamboo).

KUO P'O:—*T'ang* is another name for the *chu* or bamboo.

HING PING:—LI SÜN says, the *t'ang* is a bamboo whose joints are one chang (10 feet) apart. SUN YEN says nearly the same. K'UNG AN KUO, in commenting upon the *Shu king*, defines *t'ang* by "large bamboo." [*v. infra*, 564.] Drawing, *Rh ya*, bamboo. For other bamboos, *see* 169–174.

E., 186–196, family 竹.

There are six different names from the *Rh ya*, four from the *Shu* and two others. The simple character 竹 is quoted from the *I king*.

44.—莪 *Ô*; 蘿 *Lo*.

KUO P'O:—The people now call it 莪蒿 *ô hao*, also 蘭蒿 *lin hao*.

HING PING quotes the *Shi king*. [*v. infra*, 434, *Artemisia?*.]

E., 62, family 蒿, sub-family *lin hao* [*v. supra*, 13, *infra*, 196].

The term *Ô*, *v. Shi king*; *lo*, *v. Rh ya*.

45.—荠 *Ni*; 薺荠 *Ti ni*.

KUO P'O:—Same as 薺荠 *tsi ni*.

HING PING :—T'AO HUNG-KING says, the root and the stem both resemble those of the *jen shen* (ginseng), but the leaves are smaller. The root has a sweet taste.

P., XII, *a* 25, *tsi ni*, synonym 杏葉沙參 *hing ye sha shen.* (*Adenophora* with apricot leaves). The figure of the *tsi ni* in the *Ch.* VIII, 23, which is taken from the *Kiu huang*, LIII, 6, represents an *Adenophora* or *Campanula*. *So moku*, III, 10, 薺苨 *Adenophora remotiflora*, Miq. and 9 杏葉沙參 *A. latifolia*, Fish. The latter is common in the Peking mountains.

E., 143, family 薺苨, two distinct plants are figured which have no resemblance with *Adenophora*.

E., 151, family 桔梗, with a figure probably of *Platycodon*, the name *tsi ni* occuring as a synonym.

E., 140, family 沙參 contains a good figure of *Adenophora*.

46.—経履. Unknown to the Chinese commentators.

47.—蓤 *Hing*; 接余 *Tsie yü*. 其葉荷. Its leaves are called *fu*.

KUO P'O :—This is a water-plant. Many plants crowded together. The leaf is round. The plant is long or short according to the depth of the water. In Kiang tung it is eaten, and called there *hing*.

HING PING :—It is called *hing ts'ai* (*hing* vegetable) and the same as the 荇 in the *Shi king*. [*v. infra*, 399, *Limnanthemum nymphoides*, Link.]

E., 66, family 荇, with a good figure of *L. nymphoides*.

P., 19, 21.

48.—白華 *Pai hua*[4] (white flower); 野菅 *Ye kien* (wild kien).

KUO P'O :—The *kien* is a sort of 茅 *mao* (*Imperata*). It is mentioned in the *Shi king*. [*v. infra*, 460.]

E., 103, family 茅. The three figures are bad, certainly not *Imperata* but *Cyperideae*. 28 names are given.

[4] The character 華 is the ancient form for 花 *hua* (flower). The latter was not introduced till the 5th or 6th century.

49.—薜 *Pi* (po); 白 蘄 *Pai k'in* (*k'i*), white *k'in*.

Kuo P'o refers the reader to 5, *q.v.*

50.—非 *Fei*; 芴 *Wu*.

Kuo Po:—Same as 土 瓜 *t'u kua* (earth melon or earth gourd).

Hing Ping:—Sun Yen says it is a kind of 蕧 *fu* [see the next]. Mentioned in the *Shi king*, [*v. infra*, 363.] In another place the *Rh ya* states [*v.* 106] that 非 *fei* is the same as 菥 蓂, but that is a different plant.

E., 104, family 非, without figure.

Fei is found in the *Shi king* and *Wu* in the *Rh ya*.

Si ts'ai and *t'u kua* [*Rh ya*] are mentioned as synonyms.

The name *fei* also occurs, *E.*, 64, as a synonym of 蔜. [*infra*, 440.]

51.—蕧 *Fu*; 蕾 *Fu*.

Kuo P'o:—It has large leaves, white flowers. The edible root is like a finger, white. The figure given in the *Rh ya* resembles a rape.

Hing Ping quotes the *Shi king*. [*v. infra*, 442, *Calystegia*?.] Compare also 72, where *fu* denotes another plant.

E., 111, family 蕧, with a good figure of *Calystegia heteracea*, Wall.

Li nan, *huo t'o*, *t'ung t'o mu*, *t'ung ts'ao* and 14 other names are mentioned as synonyms, which somewhat modifies *infra*, 82.

52.—熒 *Yung*; 委 萎 *Wei wei*.

Kuo P'o:—A medicinal plant. The leaves resemble those of the bamboo; they are as long as an arrow shaft, and narrow. The stem has joints. The outer skin is white, the inner green. Large root resembling a finger, 3 feet long, edible.

Hing Ping:—Other names of this plant, given in the *Pen ts'ao*, are 女 萎 *nü wei*, 萎 蕤 *wei jui*.

P., XII *a*, 35, sub. *Wei jui*. The figure of this plant, *Ch.*, VII, 14, borrowed from the *Kiu huang*, LI, 3, represents a *Polygonatum*, which seems also to be intended in the drawing of the *Rh ya*.

So moku, VI, 3 萎蕤, *Polygonatum vulgare*, All.

E., 130, family 女萎, the figure seems to indicate a climber, with two stems from a rhizome, alternate, penni nerved, entire, acuminate, almost sessile leaves. Flowers in a simple spike from the axil of an upper leaf.

Yung and *Mei* are both quoted from the *Rh ya*.

E, 142, family 萎蕤, the figure is a *Polygonatum*, if not *Disporum pullum*, Salisb.

The same passages are quoted from the *Rh ya* as in 130. There are 18 names enumerated, one is 葳蕤.

S., I, 12, has two figures of different plants, one is a *Polygonatum*. *Jap.*,[5] 1685, *P. vulgare*, Desf.

E., 152, family 黃精, figures 11 different plants, among which are *Polygonatum*, *Disporum*, and perhaps *Galium*. *Wei jui* is one of the 21 names. *P.*, 12, 32.

Determinations are:—*C.*, 514, *Polygonatum canaliculatum*, Pursch. [*Jap.*, 1682].

A., XV, 156, *Galium tuberosum*, Lour., cult.

„ *Polygonatum sibiricum*, Red, [in Peking].

B., *Vitex cannabifolia*, S. & Z.

Sm., 51, *Caragana flava*.

I have nothing to say in favour of the last two identifications.

53.—蒟芋癸. Unknown to the Chinese commentators.

54.—竹萹 *Chu pien*; 蓄 *Ch'u*.

Kuo P'o :—It resembles a 小藜 small *li* (*Chenopodium*); red stem and joints; abundant by waysides, edible, kills insects.

Hing Ping :—T'ao Hung-king, in explaining the *Pen ts'ao*, calls this plant 萹竹 *pien chu*. He says it is found everywhere, covering the ground. Small green flowers.

P., XVI, 85, sub. *Pien chu*. Figured *Ch.*, XI, 73, and *Kiu huang*, *P.* XLVI, 6, rough drawings, *Polygonum?* Tatarinov, *Cat. med. sin.*, 9, refers the above name to *Polygonum*

[5] *Jap.* = J. Matsumura, *Nomenclature of Japanese Plants*.

hydropiper, L. P. SMITH, *Chin. Materia Medica*, etc., 175, thinks that it is rather *Polygonum aviculare*, L. which LOUREIRO, 297, calls *vien suc*.

The plant figured in the *Phun zo*, XX, 14*v*. sub. 蓄, has not been determined.

The corresponding drawing in the *Rh ya* represents [erroneously] a pink.

E., 144, family 蓄.

The heading from the *Rh ya* should be 竹；蓄.

The figure seems to indicate a *Polygonum*, may be *P. aviculare*, L. [*Jap.*, 1686]. The figure in *S.*, IV, 32, is almost the same.

A., XV, 170, gives *P. aviculare* and *P. plebejum*, Br. All these and similar species are probably meant.

[*E.*, 162, family 射干.

The synonym 扁竹 (without 艹) occurs; this is *Belemcanda chinensis*, Lam., *H.* 370, *C.*, 1020, and has nothing to do with the classics.]

55.—蒨 *Chen*; 寒漿 *Han tsiang* (cooling juice).

KUO P'O:—This plant is now called 酸漿草 *suan tsiang ts'ao* (acid juice). In Kiang tung they call it 苦蒨 *k'u chen* (bitter *chen*).

HING PING:—The *Pen ts'ao* terms it 醋漿 *ts'u tsiang* (vinegar juice) T'AO HUNG-KING states that it is a common plant near dwelling-places. The leaves are eaten. The fruit is a capsule (bladder) within which is a berry of a yellowish red colour, resembling a plum.

P., XVI, 33, sub. *suan tsiang*. LI SHI-CHEN states that the red fruit is enclosed within a five-angled bladder resembling a lantern. This agrees well with the fruit of the winter cherry, *Physalis Alkekengi*, L, a common plant in Northern China, called also *teng lung tsao* (lantern plant) and *hung ku niang* (red girl). This plant is well figured under the above Chinese name *suan tsiang* in the *Ch.*, XI, 48, and in the *So moku*, III, 43.

E., 160, family 酸漿.

The figure is a good drawing of *Physalis Alkekengi*, L.

S., II, 40. *A.*, XV, 164.

56.—薢茩 *Kie kou* (*hou*). 芵荒 *Küe kuang*.

Kuo P'o :—This is the 芵明 *Küe ming*. Leaves pointed, yellow; red flowers. The fruit resembles that of the 山茱萸 *Shan chu yü* (*Cornus*). It is also called 蔆 *Ling*. In Kuan si (present Shen si) it has the above name *Kie kou*.

Hing Ping :—T'ao Hung-king, in explaining the *Pen ts'ao*, states that the plant in question has leaves resembling those of the 茳豆 *Kiang tou* (*Cassia ?*). The seeds resemble a horse's hoof, whence the name 馬蹄芵明 *Ma ti küe ming*. The *Shuo wen* calls it 蔆 *Ling*, the *Kuang ya* 羊躑躅 *Yang chi chu*. In 楚 Ch'u (Hu kuang) they call it 芰 *K'i*, in 秦 Ts'in it is called *Kie kou*.

P., XVI, 41, *Küe ming*. Li Shi-chen states that there are two kinds of *Küe ming*, one of them is called *Ma ti küe ming* (horse's hoof *Küe ming*). Its stem is 3 or 4 feet high, the leaves (leaflets) are larger than those of the *mu su* (*Medicago sativa*); they are narrow at the base and enlarge towards the summit. In daytime they are open, at night they all fold together, two and two. In autumn the flowers, with five petals of a pale yellow, appear. They are followed by long pods resembling those of the 豇豆 *Kiang tou* (*Dolichos sinensis*). They contain many dark green seeds resembling a horse's hoof. The other kind is called 茳芒芵明 *Kiang mang küe ming*. It resembles the former, but the leaves are pointed, resemble those of *Sophora japonica* and do not fold together at night. Dark yellow flowers, small pods like a little finger, small seeds resembling those of *Hibiscus abelmoschus*.

The name of the last-described is more commonly written 望江南 *Wang kiang nan*. *Kiu huang*, LIII, 22, and *Ch.*, XI, 30. The plant figured there is a *Cassia*. At

Peking *Wang kiang nan* is the *Cassia Sophera*, L. The plants described by Li Shi-chen under the above names are without doubt two species of *Cassia*, but what Kuo P'o states regarding the *Küe ming* does not agree.

In the *So moku*, VIII, 2, 决明 is *Cassia Tora*, L., and 3, 望江南 *Cassia occidentalis*, L.

E., 131, family 决明.

Two different figures, which are taken from *S.*, II, 3, where three can be seen, one of them may be *Cassia Tora*, L., *Sm.*, 54; *C.*, 269 = 1341, *Cassia Sophera*, also *A*, XV, 148.

The other figure cannot be meant for a *leguminosa*.

E., 179, family 羊躑躅 cannot be the same, its synonym is 鬧羊花, determined as *Datura alba*, N. & E., by *Pr.*; *C.*, 894, (302); as *Datura Metel*, L., by *A.*, XV, 164; as *Hyoscyamus niger*, by *Sm.*, 29, 115, (also *Andromeda*, 84). The figure is neither one nor the other, nor can it mean a *leguminosa*. As 黃杜鵑, yellow *Azalea* is among the synonyms, it may mean *Rhododendron chinense*.

E., 78, 15, has a good figure of 望江南, a *Cassia*.

Jap., 2060, gives this Chinese name to *Senecio japonicus*, Schultz.

57.—菉蔎 *Wu i*; 薇蕪 *Sha ts'iang*.

Kuo P'o:—It is also called 白蒉 *Pai k'ui* (white *Blitum*, *see* 107).

Hing Ping refers to the 蕪荑 *Wu i*, mentioned in the *Pen ts'ao*, about which *see* 263.

58.—跌 *Tie*; 跗 *Cho*; 其紹跌.

According to She jen, Sun Yen and Kuo P'o, a 小瓜, small gourd or melon, which is also figured in the corresponding plate.

V. infra, 383, *Shi king*.

59.—芍 *Sho*; 鳧茈 *Fu ts'z'*.

Kuo P'o:—This plant grows in low fields, resembles the 龍須 *Lung sü* (a rush, *v. infra*, 455), but is more slender.

Its root resembles the end of a finger, is of a black colour, and edible.

HING PING :—The people boil it.

In the *P.*, XXXIII, 29, the above names are identified with the 烏芋 *Wu yü* (black *taro*) which is also called 地栗 *Ti li* (ground chestnut) and 勃脐 *Pi ts'i.* The latter name at Peking is applied to the black tubers of the *Scirpus tuberosus*, Roxb., (*Eleocharis tuberosa*) which is extensively cultivated all over China. Only the covering of the tuber is black ; it is white and mealy inside. A good drawing of the plant *Ch.*, XXXI, 39.

Amœn. exot., 827, 勃脐 *Bossai vulgo Quai. Juncus aquaticus radice densa fibrosa, sobole tuberosa, crebro geniculata, castanearum facie, eduli.* Figured *Phon zo*, LXXVI, 6, 7. SIEBOLD, *Syn. plant. œcon. jap.*, 49, 烏芋 *Kurokuwai, Juncus articulatus*, Thbg. (THUNBERG has *Scirpus articulatus*). *Radix edulis.*

E, 114, family 勃脐. The figure represents *Scirpus tuberosus.* *A.*, XV, 10 ; *Sm.*, 92. *Jap.*, 2028, *Scirpus plantagineus*, Retz.

60.—蘱 *Lei* ; 鼎薹 *Ting t'ung.*

KUO P'O :—It resembles the 蒲 *P'u* (rush) but is smaller.

HING PING :—It is fit for making shoes and twisting cords.

61.—蓷 *T'i* ; 茂 *Tie.*

KUO P'O :—It resembles the 稗 *Pai.* It is a weed which covers the ground.

V. infra, 352. *Graminea, Panicum.*

62.—鉤 *Kou* ; 芙 *Yao.* [Comp. 208.]

KUO P'O :—It is [the stem, it seems] as thick as the middle finger, empty inside. At the end of the stem is a head [of flowers] like that of the 薊 *ki* (*thistle*). The young plant can be eaten.

The *Shuo wen* says the *Yao* is a plant with a bitter taste. In Kiang nan they eat it to remove flatulence.

According to *P.*, XV, 47, this is the same as the 苦芙 *K'u* or bitter *Yao*, first mentioned in the *Pie lu*, and represented in *Ch.*, XIV, 6, as a spiny plant (only leaves).

So moku, XV, 41, 苦芙 *Cnicus japonicus*, Maxim. *Index Floræ sin.*, p. 461.

E., 161, family 苦芙. The figure indicates a *Cnicus*. *Jap.*, 640, *Cn. ovalifolius*, Fr. & S.; 635, *Cn. japon.* is 小薊.

E., 45, family 瓜 includes a *kou* of the *Rh ya*, which *v. infra*, 152.

63.—鼈 *Iliai*; 鴻薈 *Hung hui*. [Comp. also 3.]

Kuo P'o :—This is a vegetable.

Hing Ping :—It resembles the 韭菜 *Kiu ts'ai* (*Allium odorum*). In the *Pen ts'ao* it is also termed 菜芝 *Ts'ai chi*.

V. infra, 360, *Allium*.

64.—蘇 *Su*; 桂荏 *Kui jen*.

Kuo P'o :—The *Su* is a sort of *Jen* (oleiferous plant).

Hing Ping :—T'ao Hung-king, in explaining the *Pen ts'ao*, says, the leaves of this plant are of a purple colour underneath and very fragrant. There is a variety of it with the leaves not purple-coloured and not fragrant. There is also a wild species growing in marshes and called 水蘇 *Shui su* (water *su*) or 雞蘇 *Ki su* (cock's *su*).

P., XIV*b*, 94, 蘇 *Su*. Li Shi-chen distinguishes two sorts of *Su*. One of them, called 紫蘇 *Tsz' su* (purple *su*) has a square stem; roundish-pointed, toothed leaves, purple on both sides when the plant grows in rich soil, purple only underneath when it grows in poor soil. It is very fragrant. Young leaves eaten as a vegetable, also pickled with plums. They are also used to prepare a beverage. The other kind, with its leaves white on both sides, not

fragrant, is called 白蘇 *Pai su* (white *su*) or 荏 *Jen*. An oil is expressed from its seeds. [But it seems the *Tsz' su* also produces an oil].

Two distinct labiate plants are figured under the above names in the *Ch.*, XXV, 25, the *Jen* or *Pai su*, the oil yielding, and 27, 29, the *Su* or *Tsz' su* or purple coloured.

Amœn. exot., 911, 荏 *dsin*, vulgo *je* et *fakkuso*. Ocimo majori affinis ; ex cujus semine Japones celebre oleum *jeno abra* conficiunt.

Ibidem 蘇 *sso*, usitate *naraje* et *sjako gusa*. An Ocimum majus, Matth. et Tabern. ?

So moku, XI, 26, 荏 *Perilla ocimoides*, L. SIEBOLD, *Icon. plant. jap. inedit*, VI, same identification. SIEBOLD, *Syn. plant. œcon.*, 190. *Acynos yegoma* 荏 E seminibus exprimitur oleum, quo celebrata japonica pluvialia sunt obducta.

Phon zo, XII, 12, 13, 蘇 and *So moku*, XI, 25, 紫蘇, *Perilla arguta*, Bth. SIEBOLD, *Plant. japon. œcon.*, 189. *Acynos siso*, 紫蘇 *Ocimum crispum*, Thbg., variat foliis purpurascentibus.

Thus in Japan the latter Chinese name, *Tsz' su* (purple *su*) is applied both to *Perilla arguta* and *Ocimum crispum*. I may observe that THUNBERG is wrong in identifying [*Flora jap.*, 248] his *O. crispum* with KÆMPFER'S *siso* or *murasakki* [*Amœn. exot.*, 784], for this latter is *Lithospermum erythrorhizon*, S. & Z. [Comp. *infra*, 142].

According to LOUREIRO, *Flora cochin.*, 446, the *Tsu su* (*Tsz' su*) in Southern China, is *Melissa cretica*, L. He says: "tota planta rubrofusca, mixto odore Pulegii, et cimicum imbuta. Foliis recentibus vescuntur indigenæ in acetariis." This is probably not *Melissa cretica*. LOUREIRO'S *Dentidia nankinensis*, sin. *kiam nan tsu su* (*Tsz' su* of Kiang nan), *l.c.*, 448, odore et colore Melissæ creticæ, is, according to BENTHAM, *Flora hongk.*, 276, *Perilla ocimoides*, var. *crispa*.

The labiate plant, cultivated at Peking under the name of *Su* (vulgo *su tsz'*) for the oil expressed from its seeds, is *Perilla ocimoides*. This plant has an unpleasant, powerful smell.

According to HENRY, *Chinese Names of Plants*, 395 and 512, *P. ocimoides* is much cultivated for its oil in Hu pei, and is called there *Su ma* (*su* hemp). A variety with red flowers is *Tsz' su*.

The 水蘇 *Shui su*, mentioned by a commentator on the *Rh ya*, is likewise a Labiate, but I am not prepared to say to what genus it belongs. See *P.*, XIV*b*, 97. *Ch.*, XXV, 14. *Phon zo*, XII, 14.

E., 58, family 蘇, contains 4 figures and 25 names.

The first figure, 紫蘇, is *Perilla ocimoides*, L., in *Jap.*, 1588, *P. arguta*, Bth. The figure for 水蘇, if meant for a Labiate, is not a success; it may be a *Scrophularinea* or an *Acanthacea*. The figure of 荏 may indicate another *Perilla*. In *Jap.*, 1589, *P. ocimoides*.

C., 1199, 1202, 1203. *S.*, X, 15.

65.—蔎 *Se*; 虞蓼 *Yu liao*.

KUO P'O:—Same as the 澤蓼 *Tse liao* (Marsh *Polygonum*).

HING PING refers to the *Shi king* 荼蓼 *T'u liao* [*v. infra*, 365] which MAO explains by 水草 *Shui ts'ao* (water-plant).

The drawing in the *Rh ya* may well be intended for a *Polygonum*.

P., XVI, 78, 水蓼 *Shui liao* (Water *Polygonum*), where the above names of the *Rh ya* are given as synonyms. *Ch.*, XIV, 19, *Shui liao, Polygonum*.

LOUREIRO, *Fl. cochin.*, 295, *kuei liao*, the Chinese name for *Polygonum hydropiper*, L. [*v. infra*, 366.]

According to HOFFM. & SCHULTES, 451, 水蓼 in Japan is *Polygonum perfoliatum*. Same Chinese name, *So moku*, VII, 62, and *Phon zo*, XX, 3, *Polygonum* figured, not determined.

E., 58, family 蓼. Of the two figures the first called 大蓼 is not a *Polygon*, but probably *Psilopeganum sinense*, Hemsl., (*Rutaceæ*), 21 names are given, among them also 紅, etc., from the *Rh ya*, [*v. infra*, 102]. The second figure may represent *P. orientale*.

Jap., 1705, *P. perfoliatum* 杠板歸; 1695, *P. flaccidum*, 水蓼.

66.—蓨 蒋. Unknown to the Chinese commentators.

67.—虋 *Men*; 赤苗 *Ch'i miao* (red blade).

Kuo P'o:—It is nowadays called 赤粱粟 *Ch'i liang su* (red *Setaria italica*).

Hing Ping:—The above character *men* is the same as 糜 in the *Shi king*. [*v. infra*, 345, *Setaria italica*.]

E., 30, family 黍, both the red and white (68) varieties are *Panicum miliaceum*. [*v. infra*, 341–343.]

68.—苣 *K'i*; 白苗 *Pai miao* (white blade).

Kuo P'o:—It is now called 白粱粟 *Pai liang su* (white *Setaria italica*).

V. infra, 346, *Setaria italica*.

E., 59, family 茶, *Lactuca*; *k'i* is a synonym.

E., 137, family 地黃, as a synonym = *Rehmannia*.

E., 42, family 薏苡 as a synonym = *Coix lacryma*.

69.—秬 *Kü*; 黑黍 *Hei shu* (black millet).

Kuo P'o quotes the *Shi king*.

Hing Ping:—This is the great black millet used for making the sacrificial spirit 鬯酒.

V. infra, 342, *Panicum miliaceum*.

70.—秠 *Fou* (*p'ei*). 一稃二米 (two seeds within one glume).

Kuo P'o:—This is a kind of *hei shu* or black millet distinguished from the foregoing (by having two seeds in one glume). In the reign of the Han Emperor Ho ti (A.D. 89–106), in the district of 任城 Jen ch'eng (now Yen chou fu, in Shan tung), such a black double-kernelled millet was reaped; more than 3 *hu* of it were gathered.

Hing Ping :—This double-kernelled millet was used in olden time for making the spirits offered in the ancestral worship of princes, it being regarded as an unusual thing.

V. infra, 342.

71.—稌 *T'u*; 稻 *Tao*.

Kuo P'o :—Nowadays in 沛國 *P'ei kuo* (northern part of present An hui Province) the people use the term 稌 (to designate Rice).

Hing Ping quotes the *Shi king*, *Li ki*, *Shuo wen* and the *Tsz' lin* [3rd century]. The latter states 糯 *No* is the name for the 黏稻 *Nien tao* (glutinous rice) and 杭 *Keng* is the [common] rice without the glutinous quality. In the *Pen ts'ao* these two kinds are called 粳米 *keng mi* and 稻米 *tao mi*.

The *Rh ya* makes *t'u* and *tao* to be the same thing, as does also the *Shuo wen*. But *tao* is nowadays a general term for rice, whilst *t'u*, according to the dictionary *Tsi yün* [11th century] is the same as *no* or glutinous rice. [*v. infra*, 337, 338, about Rice mentioned in the Classics.] The terms *tao* and *t'u* occur also in the *Shan hai king*, 稻米 *tao mi* and 稌米 *t'u mi*, used for the sacrifices offered to the mountain spirits.

E., 25, family 稻.

P., 22, 29. *Sm.*, 185.

72.—蕠 *Fu*; 蘠茅 *K'iung mao*. [Comp. also 51.]

Kuo P'o :—That with red flowers is called *k'iung*; another kind with yellow or white flowers is called 菱苕 *Ling t'iao*.

The name *ling t'iao* is not found in Chinese botanical works. The character *ling* is a name for the water caltrop, *Trapa*, and this plant is represented in the corresponding figure of the *Rh ya*. This identification is no doubt erroneous. *K'iung mao* is a magic herb mentioned in the *Li sao*. [*v. infra*, 416.]

See note to 51. *Calystegia heteracea*.

73.—臺 *T'ai*; 夫須 *Fu sü* (poor man's need).

Kuo P'o:—Cheng Hüan, in commenting upon the *Shi king*, says that this plant (a sedge) can be made into rain-cloaks and hats.

V. infra, 457, *Scirpus*.

E., 107, family 莎 *Cyperus*. [*v. infra*, 97].

74.—藑蒿. Unknown to the Chinese commentators.

75.—蔤 *Meng*; 貝母 *Pei mu* (mother-of-cowry shell).

Kuo P'o:—The roots are round like small cowry shells and white. The leaves and flowers resemble those of the 韭 *Kiu* (*Allium odorum*).

Hing Ping:—This is a medicinal plant. In the *Shi king* its name is written 蘴 *Meng*. The *Pen ts'ao* calls it 空草 *K'ung ts'ao*. T'ao Hung-king states that it grows by wayssides. The root looks like cowries, whence the name.

V. infra, 423, *Fritillaria*.

E., 129, family 貝母, the three figures are copies from *S.*, II, 28, none of them resembling *Fritillaria*.

76.—蔨 *K'iao*; 蚍衃 *P'i fou*.

Kuo P'o:—It is now called 荊葵 *King k'ui*, for it resembles the *k'ui* (*Althæa*, *Malva*). Violet flowers. 謝氏 says that it is a small plant with not many leaves but an abundance of flowers.

V. infra, 369, *Malva*.

E., 85, family 葵, with 39 names. Of 7 figures, only 3 belong to *Malvaceæ*.

Hi and *t'u k'ui* [*v. infra*, 115] are synonyms, also *kien* and *jung k'ui* [*v. infra*, 136], and *Chung k'ui* and *fan lu* [*v. infra*, 148, 368].

77.—艾 *Ai*; 冰臺 *Ping t'ai*.

Kuo P'o:—It is now called 艾蒿 *Ai hao*.

This is *Artemisia vulgaris*, L. [*v. infra*, 429.]

78.—**蕇** *Tien*; **亭歷** *T'ing li.*

Kuo P'o:—Leaves and fruit resemble those of the **芥** *Kie* (Mustard). Another name is **狗薺** *Kou tsi.*

Hing Ping:—The *Kuang ya* calls it *kou tsi.* In the *Pen ts'ao* there are the names **丁歷** *Ting li*; **太室** *T'ai shi*; **大適** *Ta ti.* T'ao Hung-king says, the plant is found by waysides. Seeds small, yellow, bitter.

P., XVI, 51, and *Ch.*, XI, 63, describe and figure under *ting li*, a cruciferous plant. Tatarinov, *Catal. med. sin.*, 56, *Ting li, Semina Sisymbrii.* Four species of *Sisymbrium*, including our common *S. Sophia*, are known from Northern China [See *Index Floræ sin.*, I, 45]. Loureiro, *Fl. cochin.*, 479, gives *Tim li* as the Chinese name for *Lepidium petræum*, but according to the *Index Floræ sin.*, 41, Loureiro's plant is *Nasturtium palustre*, D.C.

In Japan the above Chinese name, *Ting li*, is applied to several cruciferous plants. *Phon zo*, XIX, 2, **葶藶** *Nasturtium palustre*, D.C., also *Arabis perfoliata*, Lam. In Hoffm. & Sch., 219, same Chinese name, *Draba nemoralis*, L. *So moku*, XII, 4, the same plant **苦葶歷** (bitter *ting li*).

E., 141, family **葶藶**, with three figures of *Cruciferæ.*

靡草 of the *Li ki* is also referred to this. *Jap.*, 825, *Draba nem.*

79.—**苻** *Fu*; **鬼目** *Kui mu* (devil's eye).

Kuo P'o:—There is now in Kiang tung a plant *kui mu.* Its stem resembles that of the **葛** *Ko* (*Pachyrhizus*); its leaves are orbicular and covered with hairs, the fruit is shaped like an ear-ring. It is of a reddish colour. The plant grows in a bushy manner.

The *P.*, XVIII, *b*, 31, identifies the *kui mu* of the *Rh ya* with the **白英** *Pai ying*, a climbing plant with 5 lobed tomentose leaves; fruit globular, resembling that of the **龍葵** *Lung k'ui* (*Solanum nigrum*), but of a dark red colour. The figure of the *pai ying* in *Ch.*, XXII, 18, represents a *Solanum* with lobed leaves.

So moku, III, 52, 白英 *Solanum dulcamara*, L.

E., 158, family 白英. The figure indicates a twiner, different from the figure in *Rh ya*. *Jap.*, 2100, *S. dul.*

Fu is also synonym of 荇 or *Limnanthemum*, E., 66.

80.—薜; 庾草. Unknown to the Chinese commentators.

81.—蓇 *Ao*; 蘡薁 *Sao lü*.

Kuo P'o :—It is now called 蘩蔞 *Fan lü*, also 雞腸草 *Ki ch'ang ts'ao* (chicken bowels herb).

Hing Ping :—The *Pen ts'ao* says, the *fan lü* is of a bitter taste. T'ao Hung-king states that the people use it as a vegetable for soup.

P., XXVII, 6, *fan lü*, a creeping plant. The drawing in *Ch.*, IV, 7, *s.n.*, agrees with the figure; *So moku*, VIII, 65, under 蘩蔞, which is *Stellaria neglecta*, Weihe. But the plant 雞腸草, is kept apart in *P.*, XXVII, 7, in *Ch.*, IV, 8, and in the Japanese botanical works. In the *So moku* it is *Eritrichium pedunculare*, A.D.C.

E., 144, family 蘩蔞, the figure may be of a *Stellaria*.

82.—離南 *Li nan*; 活莵 *Huo t'o*. [Comp. also 143.]

In the *Shan hai king* this plant is repeatedly mentioned under the name of 蔨脫 *K'ou t'o*. Kuo P'o explains that it is an herbaceous plant of the southern provinces, which grows to the height of more than ten feet, and has large leaves resembling those of the 荷 *Ho* (Lotus flower). The pith of the stem is very white. The people of 零 Ling and 桂 Kui [Hu nan] cultivate it. It is called 灌 *Kuan*, and grows like a tree.

In *P.*, XVIII*b*, 28, the above names, found in the *Rh ya* and *Shan hai king*, are referred to the 通脫木 *T'ung t'o mu*. Li Shi-chen explains this name, saying that the pith is obtained by stripping off the rind. *T'ung*=to go through; *t'o*=to peel off. Ch'en Ts'ang-k'i [first half of the 8th century] states that the *t'ung t'o* tree grows on the

sides of the mountains. The leaves resemble those of the 蓖麻 *Pi ma* (*Ricinus communis*). The stem contains a beautiful light, white pith, which is used by women for making fancy articles. Its common name is 通草 *T'ung ts'ao*. Under this latter name *Ch.*, VIII, 64, gives a good drawing of the *Aralia* (*Fatsia*) *papyrifera*, (Hooker) the pith of which, as is now well known, yields the so-called "rice-paper." This plant was long known as growing plentifully in Formosa. [Comp. *Kew Journ. Bot.*, IV (1852), p. 53 *tt.* 1, 2.] Recently Dr. A. Henry discovered it also in *Hu pei* [*Chinese Names of Plants*, 488, *t'ung ts'ao*; *Ind. Florae sin.*, 341]. E. H. Parker [*China Rec.*, IX, 327] reports that the rice-paper plant, *t'ung ts'ao*, is produced in Sung k'an (Sz' ch'uan, near the Kueichou frontier). The pith paper in China is chiefly used for manufacturing artificial flowers for women's hair. Besides this, the Chinese painters execute brilliant paintings on it. *Aralia papyrifera* is an herbaceous plant, but it has sometimes a tree-like appearance.

通草 *Akebia quinata*, Deen., and 通脫木 *Fatsia horrida*, (Smith), are found in Japan. [See *Phon zo*, XXX, 8, 9, and 10, 11.]

E., 134, family 蒄脫, with two figures, one for *Fatsia papyrifera*, the other a branched prickly plant.

The names given, *infra* 143, are included here.

E., 111, family 蔰 [*v. supra*, 51] mentions *li nan* of the *Rh ya* as a synonym of *Calystegia*.

83.—龍天蔴; 須葑蕊. Unknown to the Chinese commentators. [Comp. *infra*, 105 and 361.]

84.—蓎 *P'ang*; 隱葱 *Yin jen*.

Kuo P'o:—It resembles the 蘇 *Su* (*Perilla*). The plant is covered with hairs. In Kiang tung it is now called *yin jen*. The people gather and pickle it; they boil it also for food.

This plant is not noticed in the *Pen ts'ao kang mu.*

E., 143, family 薺苨 [*v. supra*, 45], *yin jen* occurs as a synonym.

85.—芋 *Yu*; 蔓于 *Man yü.*

Kuo P'o:—This is a water-plant, also called 軒于 *Hien yü.* In Kiang tung they call it *yu.*

P., XVI, 85, and *Ch.*, XIV, 33, consider the *yu* plant of the *Rh ya* to be the same as the 蒢 *yu*, which ancient authors describe as a marsh or water-plant like silk floss: long leaves which are eaten by horses; stem with joints. It has a fetid smell. Williams, *Dictionary*, 1113, thinks that it may be a *Potamogeton.*

The *Shuo wen* keeps the two characters *yu* distinct. According to this dictionary 芋 is another term for 淯 (to strain spirits) and 蒢 (a plant growing by the edge of the water).

The stinking plant *yu* is mentioned in the *Tso chuan*, 141, [B.C. 655], in an oracular passage, saying:—there is a fragrant herb and a *noisome* one, and ten years hence the *noisomeness* will continue (一薰一蕕十年尙猶有臭).

Siebold, *Icon. jap., ined.*, VI, 蒢 *Phanoides japonica* (*Clerodendron*). [See also *Phon zo*, XX, 13.]

E., 108, family 蒢. The figure seems to indicate a *Potamogeton.* *Jap.*, 627, *Clerodendron divaricatum*, S. & Z., may caution us not to accept Japanese identifications without guarantee from Chinese sources.

86.—菰 *Lu*; 蘧 *Ts'u.*

Kuo P'o:—A plant used for making shoes.

87.—杜夫 *Chu fu*; 搖車 *Yao ch'e.*

Kuo P'o:—A trailing plant with small leaves, violet flowers, edible. The people now call it 翹搖車 *K'iao yao ch'e.*

V. infra, 448, *Vicia hirsuta.*

E., 72, family 翹搖, with figure of a *Vicia*.

The synonym *t'iao*, from the *Shi king* [*v. infra*, 448]. That this term is not mentioned in the *Rh ya*, while two others are, is a proof that the present text of the *Shi king* is not what it was about 300 B.C. There are many more such cases, all specially inexplicable by the commentators.

88.—出隧 *Ch'u sui*; 蘧蔬 *Kü shu*.

Kuo P'o:—It resembles the 土菌 *T'u kün* (a mushroom) and is produced within the 菰草 *Ku tsao* [*Hydropyrum latifolium*. *V. infra*, 350]. The people of Kiang tung eat it. It is sweet and mucilaginous.

The corresponding figure of the *Rh ya* represents a mushroom.

E., 40, family 菰, makes the two terms simply synonyms. It is possible that the young sprouts of *Hydropyrum* were considered to have the quality of mushrooms. Whether a peculiar mushroom grows among *H's* should be ascertained from a professional botanist.

The two terms are from the *Rh ya*. 蒐 is mentioned in the *Li ki*. *P.*, 19, 17; 23, 15. 菰子 is mentioned *E.*, 52, among the 菌 or mushrooms.

89.—蘄茝 *K'in (k'i) ch'i*; 蘼蕪 *Mi wu*.

Kuo P'o:—This is a fragrant herb with small leaves, resembling the 萎 *Wei*. Huai Nan-tsz' [2nd century B.C.] says that it resembles the 蛇牀 *She ch'uang* [an umbelliferous plant, *Selinum* or *Cnidium*]. The *mi wu* is mentioned in the *Shan hai king*.

Hing Ping:—Another name is 芎藭苗 *Kung k'iung miao*. In the *Pen ts'ao* it is also called 薇蕪 *Wei wu* and 江離 *Kiang li*. T'ao Hung-king says that the plant resembles the *she ch'uang* [*v. supra*].

The fragrant plant in question is mentioned in the *Li sao*. [*v. infra*, 411, 412, *ch'i* and *kiang li*.]

E., 143, family 蘼蕪. Both dissyllables are from the *Rh ya*.

The figure represents an Umbelliferous plant, but without flower or fruit.

90.—茨 *Ts'z'*; 蒺藜 *Tsi li.*

Kuo P'o:—This plant creeps on the ground. It has small leaves. The fruit is provided with three prickly horns.

This is the *Tribulus terrestris*, L., and this plant may also be recognised in the corresponding drawing of the *Rh ya.*

[Comp. *infra*, 427].

E., 141, family 蒺藜, with a good figure of *Tribulus terr.*
C., 52. *S.*, I, 38. *P.*, XVI, 87. *Sm.*, 221.

91.—薺苨 *Ki ju (na)*; 竊衣 *Ts'ie i* [stealing clothes].

Kuo P'o:—It resembles the 芹 *Kin* [(*Enanthe stolonifera*, an umbelliferous plant] and is edible. Seeds hairy, as large as a wheat-grain, two together, opposite; they stick to people's clothes.

Hing Ping:—Popular name of the plant 鬼麥 *Kui mai* (devil's wheat). Not mentioned in the *Pen ts'ao kang mu.*

Jap., 539, *Caucalis jap.*, Houtt., 窃衣 (=*Torilis Anthriscus*, Gmel., *Index Fl. S.*, 337).

92.—髦 *Mao*; 顛棘 *Tien ki.*

Kuo P'o:—A creeping plant with small leaves and prickles. Another name is 商蘗 *Shang ki.* The *Kuang ya* calls it 女木 *Nü mu.*

Not found in the *Pen ts'ao kang mu.*

E., 173, family 天門冬, *Asparagus.* Several wild species grow in China.

The two names, *infra*, 108, are synonyms.

93.—萑 *Kuan*; 芄蘭 *Huan lan.*

Kuo P'o:—A creeping plant, the stalks of which, when broken, exude a milky juice; edible.

[V. *infra*, 468, *Metaplexis Stauntonii*].

E., 141, family 芄蘭, with a good figure.

In this case *kuan*, the term of the *Rh ya*, stands first, and *huan luan*, of the *Shi king*, below it.

94.—蕵 *T'an*; 荼薝 *Ch'en fan.*

Kuo P'o:—It is found in the mountains. The leaves resemble those of the 韭 *Kiu* (*Allium odorum*). Another name is 提母 *T'i mu.*

Hing Ping:—It is a medicinal plant, also called 知母 *Chi mu.* The *Pen ts'ao* gives more than ten synonyms. T'ao Hung-king says it resembles the 昌蒲 *Ch'ang p'u* (*Acorus*), and is flexible.

P., XIIa, 39, *chi mu*, and *Ch.*, VII, 41, rough drawing. Root used in medicine. Tatarinov, *Catal. med. sin.*, 16, *chi mu*, *Radix Anemarrhenæ asphodeloidis.* Hanbury, *Scient. Papers*, 259, describes and figures the rhizome of this plant beset with rufous hairs. This liliaceous plant is common in the Peking mountains. It has long linear lanceolate radical leaves. The scape is 3–4 feet high with a long terminal spike of small brownish violet flowers.

So moku, II, 14, and *Phon zo*, V, 20, 21, 知母 *Anemarrhena asphodeloides*, Bge.

E., 129, family 知母. The three very different figures are copies from *S.*, II, 27. The first figure is probably intended for the same as the first in *E.*, 140, family 沙參 (*Adenophora*), where 知母 is one of the synonyms. One of the figures may mean *Anemarrhena.*

Jap., 153. *C.*, 136. *Sm.*, 17; but *Sm.*, 57, *Chelidonium majus.* Where in China is *Ch.* called so?

95.—蕦 *Yu*; 蔦 *Si.*

Kuo P'o:—It is now called 澤蔦 *Tse si.*

Hing Ping:—The *Pen ts'ao* calls it 澤瀉 *Tse sie*, also 水瀉 *Shui sie.* Other names 及瀉 *Ki sie*, 芒芋 *Mang yü*, 鵠瀉 *Ku sie.* T'ao Hung-king says:—its leaves are narrow and long; it grows in shallow water.

P., XIX, 1, *tse sie*, a water-plant. *Tse sie* is the vulgar name of our common *Alisma plantago*, which in Northern China is frequently seen in water-ditches. The roots produce

large tubers, which are used in medicine. Good drawings of the plant, sub. 澤瀉, are given in the *Kin huang*, XLVII, 5, in *Ch.*, XVIII, 1, and in the Japanese *So moku*, VII, 35.

E., 140, family 澤瀉. One of the four figures is a good drawing of *Alisma pl.*

S., I, 21, has three figures. The figure to *P.*, 19, 1, agrees with one in *E.*, 140, named *tse sie* of 豫州.

C., 1354. *Sm.*, 7.

96.—菌 *Kün*; 鹿藿 *Lu ho*; 其實蒠; its fruit is called *niu* (*ch'ou*).

Kuo P'o:—It is now called 鹿豆 *Lu tou* (deer's bean).

The leaves resemble those of the 大豆 *Ta tou* (*Soja hispida*). A climbing plant. Fragrant, yellow root.

Hing Ping:—The *Pen ts'ao* says that it has a bitter taste.

P., XXVII, 27, 鹿藿 *Lu ho*, also 營豆 *Lao tou*, a climbing leguminous plant, wild-growing, used as a vegetable. The small black seeds, which resemble pepper, are edible. The *Kin huang*, LIII, 15, and *Ch.*, III, 45, figure the *lu ho* with trifoliate leaves.

So moku, XIII, 33, 鹿藿 *Rhynchosia volubilis*, Lour. The *Phon zo*, I, 2, 3, applies this Chinese name both to *Rhynchosia* and to *Glycine ussuriensis*, Rgl.

Loureiro, *Flora cochin*, 562, says, regarding *Rhynchosia volubis*:—caulis volubilis, folia ternata, semina nigra nitida. Habitat inculta prope Cantonem. Nomen sinicum *Chio tau* (perhaps 薏豆).

E., 37, 9, family 豆. The figure, like that in *P.*, 27, is not with trifoliate leaves.

E., 111, family 葛, the term *lu ho* is synonymous with *ko* (*Pachyrrhizus* [*v. infra*, 390]).

97.—薃 *Hao*; 侯莎 *Hou so*; 其實婕; its fruit is called *t'i*.

Kuo P'o:—The *hao* is mentioned in the *Hia Siao cheng* (Calendar of the Hia Dynasty). It is also called 莎蓆 *So sui*.

Hing Ping:—The *Kuang ya* calls it *so sui* and 地毛 *Ti mao*,

The above-quoted passage in the Hia Calendar is 正月緹縞. Douglas translates it:—in the first month fruits the *Cyperus*. The *Shuo wen* explains the character 莎 by 鎬 侯.

P., XIV*b*, 58, 莎草 *So ts'ao* or 香附子 *Hiang fu tsz'* (fragrant tuber).[6]

As synonyms are given the names in *Rh ya* 73 and 97. But the author of the *Pen ts'ao kang mu*, and before him other Chinese authors, confound two distinct cyperaceous plants. *Rh ya* 73 is the *so ts'ao* a *Scirpus* or *Cyperus*, the fibres of which, in ancient times, were made into rain cloaks and hats [see also *infra*, 457], but the plant *hao* [97] seems to denote the *hiang fu tsz'*, which is the *Cyperus rotundus*, L. Its fragrant tubers are used in medicine.

Loureiro, *Flora cochin.*, 53, *Cyperus rotundus*, L., since *hiam phu çu*. Hoffm. & Sch., 192, 193, refer the name 香附子 only to *Cyperus rotundus*, and 莎 to *C. Iria*. But the *Phon zo*, IX, 35, applies both these Chinese names to *Cyperus rotundus*, as does also *Ch.*, XXV, 35. The figure in this latter work represents a sedge with oblong tubers.

E., 107, family 莎, the figure is bad, a *Cyperus* probably intended [*v. supra*, 73]. *Jap.*, 731, 莎草科 *Cyperaceæ*.

C., 412. *A.*, XV, 181. [*Sm.*, 81, *C. esculentus*], under the name *Hiang fu*. *Jap.*, 740, *Cyperus rotundus*, L., 香附子.

98.—莞 *Kuan* (*huan*); 苻蘺 *Fu li*; 其上蒿. The upper part of the plant is called *li*. [See also 4, where the same name (*li*) is applied to an *Allium*.]

Kuo P'o:—Nowadays the people of 西方 Si fang (Western China) call the 蒲 *P'u* (cat's-tail, *Typha*, *v. infra*, 375) 官蒲 *Kuan p'u*, and its head *li*. In Kiang tung the same plant is called *fu li*, and by *li* they understand the inner part of the stem, of which mats are woven.

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[6] 附 *Fu* properly denotes the tuberous root of *Aconitum*.

HING PING :—某氏 states that *fu li* is another name for the 白蒲 *pai p'u* (white rush). In 楚 Ch'u (Hu kuang) it is called 莞蒲 *kuan p'u* and its head is *li*. CHENG HÜAN, in commenting upon the *Shi king*, says :—the 莞 *kuan* is a water plant, it grows thickly crowded together, has a round stem. It resembles the 小蒲.

P., XIV, 14, gives *kuan* as a synonym for 白芷 *pai chi*. But this is evidently a mistake, for *pai chi* is an umbelliferous plant [*v. infra*, 410], whilst *kuan* is a rush [*v. infra*, 455].

E., 68, family 蒲, with six figures, apparently all *Acorus*, except the last, which is a *Typha*. 31 names are given ; *p'u* and *huan* are from the *Shi king*.

P., XIX, 13, with the names 香蒲 and 黃蒲.

C., 420, *Typha japonica*, Miq. = *Jap.*, 2253.

B., *T. angustifolia*, L., *Sm.*, 223, *T. Bungeana*, Tatar.

99.—荷 *Ho* ; 芙蕖 *Fu kü*. The *Lotus*, *Nelumbium speciosum*.

其莖茄 its stem is called *kia*.

其葉蕸 its leaf is *hia*.

其本蔤 its lower part is *mi*.

KUO P'O :—Another name for the *ho* plant is 芙蓉 *fu yung*. In Kiang tung the name *ho* is usual. Regarding the character 蔤 *mi*, KUO P'O says that it is the white rhizome (白蒻) of the plant which is amongst the mud.

E., 93, family 蓮, with a good figure.

C., 721–729. *Pr.*, 136, 137. *Sm.*, 139. *S.*, XI, 15.

Pr., 219, gives 芙蓉, for *Crossostephium artemisoides*, Less., (a Composite). These two characters are also used for *Hibiscus mutabilis*, L., in Canton Province, or in South China according to *W.D.*, 144. *E.*, 93, quotes it as a synonym for *Nelumbium*, from the 古今注.

100.—其華菡萏 its flower is *han tan*.

其實蓮 its fruit is *lien*.

KUO P'O :—*Lien* means the 房 *Fang*, or receptacle.

101.—**其根藕.** Its root is *ou*.

其中的. The seed is called *ti*. [Comp. also 191.]

的中薏. The centre of the *ti* is called *i*.

Kuo P'o explains that by *ti* the seeds inside the *lien*, or receptacle, are meant, and that *i* is the bitter heart (of the seed), the *cotyledons*.

Hing Ping:—Li Sün says that all the above terms (99-101) refer to the 芙渠 *fu k'ü* and its stem, leaves, flowers, fruit and root. The people in Kiang tung call the flowers of the *ho* plant 芙蓉 *fu yung*. In Northern China the root (*ou*) is called *ho*, and the term *ho* is also applied to the *lien* or receptacle. In Shu (Sz' ch'uan) they call the root 茄 *kia*.

The *Rh ya* gives under the above names two quite exact drawings of *Nelumbium speciosum*. It is also figured in *Kiu huang*, LVIII, 22, *Ch.*, XXXII, 9, and *So moku*, X, 9, 10. Description in *P.*, XXXIII, 16. [*V.* also *infra* 395.]

102.—**紅** *Hung*; **龍古** *Lung ku*; **其大者蘬** that of large size is called *k'ui*.

Kuo P'o:—The common name is **紅草** *hung ts'ao*, also **龍鼓** *lung ku*.

Hing Ping:—She jen gives the names *hung* and **龍古** *lung ku*. In the *Shi king* it is termed **游龍** *yu lung* (and **蓼** *liao*).

V. infra, 426, *Polygonum orientale*.

The drawing in the *Rh ya* agrees.

E., 58, family **蓼**, with two figures, of which one is not a *Polygon*.

S., III, 38. *P.*, 16, 79, with a good figure.

103.—**蒪** *Ts'o*; **薺實** the fruit of the *tsi*.

Kuo Po explains:—the seeds of the *tsi* plant.

Hing Ping:—The *Pen ts'ao* says the *tsi* is of a sweet taste. A soup can be made by boiling the leaves. Mentioned in the *Shi king*.

V. infra, 367, *Capsella bursa pastoris*.

104.—麡 *Fen*; 枲實 fruit of the *i (si)* plant.

枲 *I (si)* is the same as 麻 *ma* (hemp).

Kuo P'o quotes the *Li ki* 苴麻之有麡, the female hemp bears the *fen*. But this passage is, as Hing Ping corrects, from the *I li*.

V. infra, 388, *Cannabis sativa*, L.

E., 38, family 麻, sub-family 胡麻. The figure represents *Sesamum indicum*, L. Other sub-families [*v.* 140 and 388].

105.—須 *Sü*; 蓑蕪 *Sun wu*.

Kuo P'o:—The plant (root) resembles a 羊蹄 *yang ti* (sheep's hoof). It (the leaves) can be eaten; is of a sour taste.

Hing Ping:—According to Mao, this is the same as the 蓱 *feng* of the *Shi king* [*v. infra*, 361]. Sun Yen says that the *sü feng tsung* [*Rh ya*, 83] is also the same. Some commentators identify the *feng* with the 蔓菁 *man tsing*, which is a *Rape*.

P., XIX, 7, identifies the *sü* or *sun wu* with the 酸模 *suan mo*, which is a Sorrel, *Rumex*. [*V. infra*, 441.]

E., 160, family 酸模, with figure of *Rumex*.

One synonym is *Mountain Rhubarb*, 山大黃.

E., 69, family 蔓菁, has figures of four different plants. The same terms from the *Rh ya* are enumerated here as in *E.*, 160.

106.—非 *Fei*; 葸菜 *Si ts'ai*.

Kuo P'o:—The *fei* plant grows in low, damp places. It resembles the 蕪菁 *wu tsing* (rape) but has violet flowers. It is edible.

Hing Ping:—In another place (50) the *Rh ya* states that *fei* is the same as 芴 *wu*. But this is a different plant mentioned in the *Shi king*.

V. infra, 363, *Radish?*

E., 104, family 非 [*v. supra*, 50].

蕪菁 is a synonym of 蔓菁 according to *E.*, 69.

107.—蕢 *K'ui*; 赤莧 *Chi hien* (red *Blitum*).

Kuo P'o:—This is a variety of the *hien* (*Blitum*) with a red stem.

HING PING:—莧菜 *Hien ts'ai*, a vegetable, with a red stem. According to *P.*, XXVII, 9, 莧 *hien* is a general name for several species of *Amarantus*. At Peking it is applied to *Amarantus Blitum*, L. Figured under *hien* in *Kiu huang*, LVIII, 25, and *Ch.*, III, 9.

SIEB. *Plant. œcon. japon.*, 124, 莧 *Amarantus oleraceus*, L., (a) *caule foliisque viridibus*, (b) *caule foliisque purpurascentibus*.

Phon zo, XLVIII, 17-19, 莧 *Amarantus mangostanus*, L., and same Chinese name applied to *Euxolus viridis*, Moq. (*Amarantus Blitum* in THBG. *Flora japon.*, 57). Ibidem, 20, 赤莧, *A. melancholicus*, L., also *A. caudatus*, L, and *A. tricolor*, L., all with purplish foliage.

So moku, XX, 22, 蕙 *Amarantus melancholicus*. Ibidem, 23, 野莧 *Euxolus viridis*.

E., 61, family 莧. Two figures, one representing an *Amarantus*, the other *Portulacca oleracea*, L. *S.*, X, 4; *A.*, XV, 106, 168, 紅莧 *A. tricolor*, L.; 白莧 *A. polygamus*, L. *W. D.*, *Chenopodium* (*Spinacia*). *Sm.*, 59, *Ch. rubrum*.

108.—薔蘼 *Ts'iang mei (mi)*; 門冬 *men tung*.

KUO P'O:—According to the *Pen ts'ao* this is the 門冬 *men tung* or 滿冬 *man tung*.

HING PING quotes the *Shan hai king*. Now the *Pen ts'ao* writes the name 天門冬 *t'ien men tung*, also 顛勒 *tien le*, 麥門冬 *mai men tung*. In 秦 Ts'in (Eastern Kansu and Shensi) it is called 羊韭 *yang kiu* (sheep's *Allium*), in 齊 Ts'i (Northern Shantung) 愛韭 *ai kiu*, in 楚 Ch'u (Hukuang) it is 馬韭 *ma kiu* (horse's *Allium*), in 越 Yue (Chekiang) it is 羊蓍 *yang shi*. Other names are 禹葭 *yü kia* and 禹餘糧 *yü yü liang*.

The commentators of the *Rh ya* here confound under the above names two plants which are kept apart in the *Pen ts'ao kang mu*.

天門冬 *T'ien men tung*, *P.*, XVIII, *a*, 47. The plant cultivated at Peking under this name is *Asparagus lucidus*.

Lindl. *Ch.*, XXII, 9, figures s.n. a plant with tuberous roots, linear leaves (Asparagus). See also *Kin huang*, LI, 4.

HANBURY, *Science Papers*, 257, describes the tubers of the Chinese *t'ien men tung*, received from Shanghai, supposing that they belong to LOUREIRO's *Melanthium cochinchinense*, *Flor. Cochin*, 268, *tien muen tum*. See BENTHAM's note on this plant in *Flora Hongk.*, 371, sub. *Asparagus lucidus*.

HENRY, *Chinese Names of Plants*, 463, *T'ien men tung* in Hupei is *Asparagus lucidus*.

So moku, VII, 7, 天門冬 *Asparagus lucidus*, Lindl.

The other *Men tung* is the 麥門冬 *Mai men tung*. This plant, much cultivated at Peking, is the *Ophiopogon spicatus*, Gawl. It is described *P.*, XVI, 16; good drawings of the plant are found in the *Kin huang*, LI, 6, and *Ch.*, XI, 10.

HANBURY, *Science Papers*, 256, figures the tubers of the *Mai men tung*. *Amæn exot.*, 823, 門冬 *Ophiopogon japonicus*, Gawl., with figure. *So moku*, VI, 46, 小葉麥門冬 (*mai men tung* with small leaves) is *Oph. japonicus*, and, 45, 大葉麥門冬 (the large leaves) is *Oph. spicatus*.

It cannot be decided whether the *men tung* in the *Rh ya* is intended for *Asparagus* or *Ophiopogon*. The *men tung* is repeatedly noticed in the *Shan hai king*.

E., 173, family 天門冬, with seven figures, of which five may represent species of Asparagus, the first being a good figure of *A. lucidus*. [*V. supra*, 92.]

S., I, 5, represents two kinds. *Pr.*, 206. *A.*, XV, 179.

C., 1301, *Asp. filicinus*, Ham.; 1302, also *A. lucidus*.

E., 174, family 麥門冬, with three figures, apparently of *Ophiopogon*.

S., I, 15. *A.*, XV, 179, according to LOUREIRO, *Aneilema medica*, R. Br.

Sm., 17, *Aneilema medica*; 162, *Ophiopog. jap.*; 194, *Scorzonera*. Both names of the *Rh ya* are heading *E.*, 173 and *E.* 174.

109.—蒿 苻止. Unknown to the Chinese commentators.

110.—濼 *Lo*; 貫衆 *Kuan Chung.*

Kuo P'o :—Leaves round and pointed. Stem black, covered with hairs. It covers the ground; does not die in winter. Another name is 貫渠 *Kuan k'ü.* The *Kuang ya* calls it 貫節 *kuan tsie.*

Hing Ping :—The *Pen ts'ao* gives the names 百頭 *Po t'ou*, 虎卷 *Hu küan*, 蕳荷 [*v.* 109], 伯蒁 *Po p'ing*, 藥藻 *Yo tsao*, 鴟頭 *Ch'i t'ou* (owl's head). T'ao Hung-king says, the leaves of this plant resemble those of the 大蕨 *ta küe* (a fern), are covered with hairs, and resemble the head of an owl [probably the young unexpanded leaves].

Kuan chung is a fern. *P.*, XII *b*, 18. Root said to be poisonous. *Ch.*, VIII, 16, represents under *kuan chung*, a fern with pinnate fronds.

Phon zo, VI, 3, 4, 貫衆, a fern, according to Franchet, *Lomaria japonica*, Kunze. According to Fauvel [*A Naturalist in the Far East*, 11] the above Chinese name is applied in Shantung to *Aspidium falcatum*, Hance. Henry, *Chinese Names of Plants*, 199, *kuan chung* in Hupei a large fern, the rhizome of which is used as a drug, *Woodwardia radicans*, Sm. Ibidem, 200, 毛貫衆 *Mao kuan chung* (hairy *kuan chung*) *Onoclea orientalis*, Hook., and *Nephrodium filix mas*, Rich., our common male fern.

E., 133, family 貫衆. The figure is a copy of *S.*, IV, 21, and nearer to *Aspidium falcatum* than to a *Woodwardia.* The figure in *P.*, XII, differs, being *bipinnate.*

Jap., 253, gives the name for *Asp. falcatum*, Sw.

C., 647, *Woodwardia* and perhaps other large Ferns.

111.—菅 *Kün*; 牛藻 *Niu tsao.*

Kuo P'o :—It resembles the 藻 *Tsao* [*v. infra*, 401]. The people in Kiang tung call it 馬藻 *Ma ts'ao.*

V. infra, 401, *Potamogeton.*

E., 66, family 藻, with two figures, one may be intended for a *Potamogeton* or a *Najas.*

Sm, 129, *Laminaria* includes one of the names given here as a synonym. It is possible that some Chinese apply the terms to sea-weeds [*v. infra*, 197] and other water-plants.

Jap., 1742, *Potamogeton oxyphyllus*. Miq., **馬藻**. [Comp. *supra*, 85.]

112.—**蓧蒿** *Chu shang*; **馬尾** *Ma wei* (horse's tail).

Kuo P'o:—The *Kuang ya* has **馬尾** *Ma wei* or **蒿陸** *Shang lu*. The *Pen tsao* writes **蒿** *Shang*. The same name is in use in Kuan si (Southern Shensi). In Kiang tung the people call it **當陸** *Tang lu*.

Hing Pixg:—The *Pen ts'ao* gives also the names **蒿根** *Shang ken*, **夜呼** *Ye hu*, **白昌** *Pai ch'ang*.

In *P.*, XVII*a*, 8, the *Shang lu* is described as a plant with large, thick leaves, resembling the **牛舌** *Niu she* (*Rumex*): the root resembles that of the radish. There are two sorts, one with white flowers and a white root, the other with purple flowers and purple root. The latter is said to be injurious to men. The plant is much cultivated in gardens. Roots and leaves are cooked and eaten. The root is also used in medicine.

At Peking *Shang lu* is *Phytolacca acinosa*, Roxbg,, which is also found in India. According to Roxburgh, in India the leaves are eaten after boiling, as is the case with *Ph. decandra*, the Pokeweed of N. America, the root of which is emetic and cathartic.

Ch., XXIV, 3, *Shang lu*, good drawing of *Phytolacca*. It is represented also in *Kin huang* LI, 5.

Amœn. exot., 828, **蒿陸** *sjooriku*, vulgo *jamma gobo* (*Cumicone*). *Planta sylvestris radice rapacea eduli* . . . . *folio Lapathi*, etc. This is *Ph. acinosa*. *So moku*, VII, 90, same Chinese name, *Ph. acinosa*.

E., 131, family **商陸**, with a good figure of *Phytolacca*. The term *lu* [v. *I king*].

S., IV, 25, with two bad figures. *C.*, 1111. *Sm.*, 171.

113.—萍 *P'ing*; 薸 *P'ing*.

Kuo P'o :—This is a water-plant, called also 浮萍 *fou p'ing* (floating *p'ing*). In Kiang tung it is called 薸 *p'iao*

The drawing of the *Rh ya* represents duck weed, *Lemna*. [*V. infra*, 400.]

E., 67, family 萍. The figure, a copy of *S.*, III, 9, is not of *Lemna*, but of *Monochoria Korsakowii*, Regl. *B.*, gives 萍蒲蓁 for *Lemna*, *Azolla*. [*Jap.*, 313, *Azolla pinnata*, R. Br. 滿江紅.]

114.—其大者蘋. A larger kind (of the *p'in*. This is *Marsilea*. [*V. infra*, 400.]

E., 67, family 蘋, with a good figure of *Marsilea*.

Jap., 1499, gives *M. quadrifolia*, L., with this Chinese name.

115.—蒋 *Hi*; 兔葵 *T'u k'ui* (hare's mallow).

Kuo P'o :—The plant resembles the *k'ui* (mallow) but it is smaller. In shape the leaves resemble the leaves of the 藜 *li* (*Chenopodium*). The plant is covered with hairs. It can be eaten, is mucilaginous.

P., XVI, 28, *t'u k'ui*. Vague, confused description. The corresponding drawing *Ch.*, III, 7, seems to refer to a Mallow.

Hoffm. & Schultes, 42, 兔葵 *Anemone altaica*, Fish. The same Chinese name is applied in the *Phon ts'o*, XVII, 19, to *Anemone flaccida*, Schm., in the *So moku*, X, 35, to *Eranthis keiskii*, Franchet, (*Ranunculaceæ*).

E., 85, family 葵 [*v. supra*, 76]. The figure of *t'u k'ui* is not of a mallow.

P., XVI, 28, figure indicates a *Malva*.

Jap., 882, *Eranthis pinnatifida*, Max.

116.—芹 *K'in*; 楚葵 *Ch'u k'ui* (mallow of Ch'u [Hukuang]).

Kuo P'o :—Commonly called 芹菜 *K'in ts'ai*. It is an aquatic vegetable.

Hing Ping :—The *Pen ts'ao* calls it 水芹 *Shui k'in* or 水英 *Shui ying*. T'ao Hung-king states that in the second or third month the young leaves are eaten, after cooking, or salted. Another kind, which is called 渣芹 *cha k'in* can be eaten raw.

Others say that there are two sorts of *k'in*, the 荻芹 *Ti k'in*, of which the white root is used, and the 赤芹 *Ch'i k'in*, (red *k'in*), of which the stems and leaves are employed for pickles or salted.

V. infra, 370, *Œnanthe stolonifera.*

E., 65, family 芹. *H.* 67. *Sm.*, 20, *Apium graveolens*; 57, Celery, parsley and watercresses.

117.—蔥 *T'ui*; 牛蘦 *Niu t'ui.*

Kuo P'o:—In Kiang tung its common name is *niu t'ui.* The plant grows more than a foot high; it has a square stem, long pointed leaves, ears with violet bluish flowers. The people make an infusion of the plant and drink it.

Hing Ping:—Cheng Hüan says that this is the 蓫 *Ch'u* of the *Shi king.* [*V. infra*, 440, *Rumex.*]

E., 64, family 蓫, figure leaves of *Rumex.*

118.—薁 *Su*; 牛脣 *Niu shun* (oxlip).

Kuo P'o:—The *su* is mentioned in the *Shi king.* Mao says that it is the same as the 水蕮 *Shui si* [*r.* 95, *Alisma plantago*]. It resembles the 薁斷 *Su tuan.* The plant has joints one inch apart.

The *su tuan* is mentioned in *P.*, XV, 45, and the name is written there 續斷. At Peking this name is applied to *Dipsacus japonicus*, Miq. The drawing in *Ch.*, XI, 33, *su tuan*, seems to represent a *Dipsacus.* Henry, *Chinese Names of Plants*, 164, *su tuan* in Hupei is *Dipsacus asper*, Wall. The root of the *su tuan*, as the name indicates, is said to have the power of joining together broken bones. Comp. regarding the medicinal virtues of this plant *Mém. conc. les Chinois*, IX, 166.

In Japan the Chinese name 續斷 is applied to *Lamium album*, L. See *So moku* XI, 11.

We are left in doubt what the *su*, or oxlip plant, was. [*V. infra* 437.]

E., 133, family 續斷, with two figures, one *Dipsacus*, the other a *Lamium*, copied from *S.*, I, 43. *C.*, 474, *Dip. asper*, Wall., or *Lamium album*, L., *Var. barbatum.* *Jap.*, 1226.

Sm., 64, *Cirsium lanceolatum* (probably a *Cnicus*).
The two terms are not mentioned in the *Rh ya*.

119.—莩 *P'ing*; 藾蕭 *Lai siao*.

Kuo P'o:—It is now called 藾蒿 *Lai hao* (Artemisia). When young the leaves can be eaten. [*V. infra*, 372, *Artemisia*.]

E., 104, family 莩, without figure.

120.—連 *Lien*; 異翹 *I k'iao*.

Kuo P'o:—Another name is 連苕 *Lien t'iao*. According to the *Pen ts'ao* it is also called 連草 *Lien ts'ao*.

Hing Ping:—Other names for this plant are 蘭華 *Lan hua*, 折根 *Che ken* and 軹 *Chi*. The commentator on the *T'ang Pen ts'ao* states that there are two kinds of this plant, the 大翹 or great *k'iao* and the 小翹 or little *k'iao*. The first has long, narrow leaves like the 水蘇 *Shui su* [*r.* 64], beautiful yellow flowers. The fruit is a capsule, resembling that of the 椿 *ch'un* (*Cedrela*). It grows in low, damp places. The little *k'iao* grows on high mountains. It resembles the former, but the leaves and flowers are smaller.

P., XVI, 65, 連翹 *Lien k'iao*. Described as an herbaceous plant growing in damp places. Yellow flowers, fruit a capsule, resembling the fruit of Cedrela. *Ch.*, XI, 61, s.n. bad drawing; 62, *lien k'iao*, from Hunan and Yünnan, seems to represent a *Hypericum*. Large yellow flowers. But the drug sold at Peking under the name of *lien k'iao* is the capsules of a shrub, the *Forsythia suspensa*, Vahl. Hanbury received the same under the Chinese name *lien k'iao* from Shanghai [*Science Papers*, 245].

Phon zo, XIX, 12, 13, 連翹 *Hypericum ascyron*, L., and other species. *So moku*, XIV, 30, 32, 小連翹 *H. erectum*, Thbg., and *H. japonicum*, Thbg. But in Japan likewise the name 連翹 is applied also to *Forsythia suspensa*. *Kwa wi*, 109. Siebold, *Icones. ined.*, V.

E., 131, family 連翹, with bad figure.

S., V, 4, with two figures, both bad, not like *Hypericum*.

Sm., 98, *C.*, 719, and *Jap.*, 965, *Forsythia suspensa*, Vahl.

Sm., 126, *Justicia?* *Jap.*, 1119, 小連翹 *Hypericum erectum*, Thbg.

121.—澤 *Tse*; 烏蓀 *Wu sun*.

Kuo P'o refers to 33, an obscure plant.

122.—傅 *Fu*; 橫目 *Hung mu*.

Kuo P'o:—Other names 結縷 *Kie lü*, 鼓箏草 *Ku cheng ts'ao*.

Hing Ping:—A trailing plant.

E., 134, family 橫目, without figure.

123.—薕 *Li*; 蔓華 *Man hua*.

Kuo P'o:—Another name is 蒙華 *Meng hua*.

124.—蔆 *Ling*; 蕨櫰 *Küe mei*.

Kuo P'o:—A water-plant, now called 芰 *K'i*.

Hing Ping:—The *Tsz' lin* [third century] says:—The people of 楚 Ch'u (Hukuang) call it 蔆 *Ling*. It is edible. The 國語 *Kuo yü* [fourth century B.C.] mentions the 芰 as an edible plant. Its common name is 菱角 *Ling küe*.

This is the water caltrop, *Trapa*. [*V. infra*, 397.]

E, 99, family 菱, with figures of *Trapa natans*, L., in different stages. *S.*, XI, 21. *Sm.*, 221. *H.*, 243–245.

125.—大菊 *Ta kü* (the great *kü*); 蘧麥 *K'ü mai*.

Kuo P'o:—Other names 麥句薑 *Mai kü kiang*; 瞿麥 *K'ü mai*.

Hing Ping:—A medicinal plant. In the *Kuang ya* it is called 蒢蒌 *Ts'z' wei*. Other names in the *Pen ts'ao* 巨句麥 *Kü kü mai*, 大蘭 *Ta lan*. T'ao Hung-king says:—Common by waysides, red flowers.

The first name in *Rh ya*—*Ta kü*—properly means the great *Chrysanthemum* [comp. *infra*, 130].

P., XVI, 46, *K'ü mai* or 石竹 *Shi chu*. This latter name, which first appears in the *Ji hua pen ts'ao* [tenth century]

denotes the pink, *Dianthus.* This plant is represented under the above names in the *Kiu huang*, XLVI, 8, and in *Ch.*, XI, 55. *Dianthus chinensis*, L., and *D. superbus*, L., are common plants in North China.

So moku, VIII, 20, 瞿麥 *Dianthus superbus*, L. 22, 石竹 *D. Seguieri* (*D. chinensis*).

E., 120, family 石竹, with a good figure of *Dianthus superbus*, L.

C., 237. *Sm.*, 86, *Dianthus Fischeri* (=*chinensis*, L.).

Jap., 787, *D. chin.*, 石竹, 790, *D. sup.* 瞿麥.

126.—牡蘜. Unknown to the Chinese commentators.

127.—蒨 *Tsien*; 山莓 *Shan mei* (mountain berry).

Kuo P'o :—It is now called 木莓 *Mu mei* (tree berry). The fruit resembles that of the 蔗莓 *piao* (*pao*) *mei* [*Rubus*, *v.* 190], but is larger. It can be eaten.

P., XVIII*a*, ii, 懸鉤子 *Hüan kou tsz*, described as a spiny shrub with red, sour, edible fruit. Identified with the *tsien* of *Rh ya*.

The plant represented under the above Chinese name in *Ch.*, XX, ii., is a *Rubus*. Henry, *Chinese Names of Plants*, 348, *hüan kou tsz* in Hupei, *Rubus corchorifolius*, L. f.

Amœn. exot., 787, 莓 *foo*, item *moo*, vulgo *itzingo*, Rubus vulgaris fructu nigro.

Siebold, *Syn. pl. œcon. jap*, 341, 懸鉤子 *Rubus palmatus*, Thbg. Same identification *Phon zo*, XXV, 17, 18.

E., 114, family 懸鉤子, with a bad figure, probably *Rubus*, but not *corchorifolius*. *Jap.*, 1935, *R. incisus*, Thbg.

128.—藖 *Ye*; 苦菫 *K'u kin* (bitter kin).

Kuo P'o :—It is now called 菫葵 *Kin k'ui*; leaves resemble those of the willow; small seeds. The plant is mucilaginous, edible.

Hing Ping :—A wild-growing vegetable, it resembles the 蕺 *Ts'i* (*Houttuynia cordata*). It is mentioned in the *Li ki*

and *Shi king*. From the passages quoted it appears that HING PING identifies the plant in question with the *kin* or violet [*v. infra*, 371]. But *P.*, XVIIIb, 50, refers the bitter *kin* of *Rh ya* to the 石龍芮 *Shi lung jui*, a poisonous plant, which according to the drawings s.n. *Ch.*, XXIV, 41, and *So moku*, X, 55, is *Ranunculus sceleratus*, L., a common plant in North China.

E., 59, family 堇. The two figures show no resemblance to *Viola* nor to *Ranunculus*.

The second figure is a copy of *S.*, II, 33.

Jap., 1857, has *Ran. sceleratus*, with the name 石龍芮.

129.—蘮 *T'an*; 石衣 *Shi i* (stone clothes).

KUO P'O:—Same as 水苔 *Shui t'ai* (water moss), also called 石髮 *Shi fa* (stone hairs). The plant is eaten in Kiang tung. The leaves resemble the 韮 *Hiai* (*Allium*), but are larger. It grows at the bottom of the water.

HING PING:—This is the 海藻 *Hai tsao* (seaweed) of the *Pen ts'ao*.

In *P.*, XXI, *i*, the above names are referred to the 陟釐 *Chi li*, called also 水綿 *Shui mien* (water filaments), a kind of water-moss growing on stones in ditches. See also *Ch.*, XVIII., 10.

At Peking *shui mien* is a *Conferva*.

E., 74, family 諸苔. with a bad figure resembling sea-weed.

130.—鞠 *Kü*; 治蘠 *Chi ts'iang*.

KUO P'O:—This is the 秋華菊 *Ts'iu hua kü* or *Chrysanthemum*, which flowers in autumn.

HING PING quotes the *Yue ling*. *Pen ts'ao* writes 菊華 *Kü hua* and 節華 *Tsie hua*. T'AO HUNG-KING says there are two kinds of this plant. One of them, properly so called, has a violet stem, is fragrant, and of a sweet taste. The leaves can be boiled into soup. The other kind has a green stem, is larger, of a bitter taste, not edible. It is also called 苦薏 *K'u i*.

The 菊 *Kü* is the *Chrysanthemum sinense*, Sab. See *P.*, XV, i, *Ch.*, XI, 1, 2, *So moku* XVII, 17, 18, 19.

Regarding the *Kü* in the Classics, *v. infra*, 404.

The corresponding drawing in the *Rh ya* is *Chrysanthemum*.

As to the *K'u i* it is noticed in *P.*, XV, 5. It is also called 野菊 *Ye kü* (wild *Chrysanthemum*). This latter name, in *So moku*, XVII, 22, is applied to *Pyrethrum setiuspe*. Maxim.

E., 87, family 菊, with five figures.

S., XII, 4; *H.*, 88; *C.*, 227; *Pr.*, 59.

Jap., 1809, *Pyrethrum* (= *Chrysanthemum*) *indicum*, *Cass*, (L.) 野菊.

131.—唐 *T'ang*; 蒙 *Meng*; 女蘿 *Nü lo*; 菟絲 *T'u sz'* (rabbit's silk). Comp. also 181.

This is the Dodder, *Cuscuta*, [*v. infra*, 450]. This plant is also intended in the corresponding drawing of the *Rh ya*.

E., 169, family 菟絲. Figure is the same *S.*, I, 9, and *P.*, XVIII, 1.

C., 1382–3, *Cuscuta chinensis*, Lam. *Sm.*, 87.

E., 150, family 松蘿, without figure, repeats all the names of *E.*, 169, but includes 松上寄生, a parasite on pine trees.

Jap., 721, *Cuscuta japonica*, Chois.

132.—苗蒿. Unknown to the Chinese commentators.

133.—茥 *K'uai*; 蕨葽 *K'üe p'en*.

Kuo P'o:—Same as the 覆葽 *Fu p'en*. The fruit resembles the 莓 *Mei*, but is smaller. It is eaten.

Hing Ping:—Other names found in the *Pen ts'ao* are 蓬藟 *P'eng lei*, 陵藟 *Ling lei*, 陰藟 *Yin lei*. The name of the fruit is 覆盆子 *Fu p'en tsz'*. An author of the T'ang period says that in a rich soil the plant produces large, sweet berries, but in a poor soil the fruit is small and sour.

Under the above names, given as synonyms, Hing Ping confounds several species of *Rubus*, kept distinct in the *Pen ts'ao kang mu*.

P. XVIII*a*, 9, 覆盆子 *Fu p'en tsz'*, described as an edible, red fruit, juicy, sweet and sour. *Ch.*, XXV, 11, 12, figures under this name a *Rubus* or raspberry. HENRY, *Chinese Names of Plants*, 346, gives it as the Chinese name in Hupei for *Rubus coreanus*, Miq.

Phon zo, XXV, 11–12, 覆盆子, various species of *Rubus*, *R. Tokkura*, Sieb., *R. sorbifolius*, Maxim., *R. Thunbergii*, S. &. Z., *R. pungens*, Camb.

Another *Rubus* is noticed in *P.*, XXII*a*, 7, under the name of 蓬藁 *P'eng lei*. Regarding this see *infra*, 436.

E., 114, family 覆盆子. Figure of *Rubus*.

S., XI, 20; *C.*, 335. *Sm.*, 115, 188, *R. idæus* (quotes TATARINOW for *Humulus lupulina*).

A., XV, 149, *Fragaria vesca*, Lour., also *F. elatior*, Ehrh.

E., 143, family 蓬藁. Figure of another *Rubus*. [*V. infra*, 190.] This is said to be the name for *the root*.

134.—茂 *Ki*; 堇草 *Kin ts'ao*.

KUO P'O:—This is the 烏頭 *Wu t'ou* (black head, or, perhaps, crow's head). In Kiang tung it is called *kin*.

[*V. infra*, 371, *Viola*.] *P.*, XVI, 68, however, refers the *kin ts'ao* of the *Rh ya* to the 蒴藋 *So t'iao* of the *Pie lu*, a plant vaguely described there. The *Kuang ya* explains the character 堇 by 藋. According to HENRY, *Chinese Names of Plants*, 80, *so t'iao* is *Sambucus chinensis*, Lindl. *Ch.*, XI, 75. Same Chinese name in Japan applied to *Sambucus Thunbergiana*, Bl. See *Phon zo*, XIX, 15.

E., 128, family 烏頭, for the figure referred to *E.*, 127, family 附子. *P.*, XVII, 44, which is *Aconitum Fischeri*, Rchb., according to *C.*, 843. *S.*, IV, 2, has three figures, two are copied *E.*, 127, and one in *E.*, 147, family 蒴藋, where five names are mentioned. The figure may mean *Sambucus*.

135.—藏百足. Unknown to the Chinese commentators.

136.—菺 *Kien*; 戎葵 *Jung k'ui* (mallow of the western barbarians).

Kuo P'o :—It is now called 蜀葵 *Shu k'ui* (mallow from Sz'ch'uan). Its flowers resemble those of the 木槿 *Mu kin* (*Hibiscus syriacus*).

Hing Ping :—The characters 戎 and 蜀 have the same meaning (designate the same country).

Shu k'ui is the common name for *Althæa rosea*, Cav., a common Chinese garden plant. *P.*, XVI, 26. Good drawings in the *Rh ya*, and in *Ch.*, III, 5. *So moku*, XII, 58, 蜀葵 *Althæa rosea.*

E., 85, family 葵 [*v. supra*, 76, 85].

There are 39 names enumerated, among them 7 from the *Rh ya*. *Jap.*, 124. *Sm.*, 10. [Comp., 113, *Hibiscus rosa sinensis*, L., which is found in *E.*, 295, family 扶桑, synonym 佛桑. *P.*, XXXVI, 65.]

137.—蘜 *Ki*; 狗毒 *Kou tu* (dog's poison).

Kuo P'o :—Fan Kuang states :—There is a popular proverbial saying, "as bitter as the *ki*."

E., 108, family 蒪 [*v.* 8, 62, 159, 208] *Cynaroideæ.*

138.—垂比葉. Unknown to the Chinese commentators.

139.—蕧 *Fu*; 盜庚 *Tao keng.*

Kuo P'o :—Same as 旋覆 *Süan fu.* It resembles the *kü* (Aster or Chrysanthemum).

Hing Ping :—Other names found in the *Pen ts'ao* are 戴椹 *Tai shen*, 金沸草 *Kin fei ts'ao*, 盛椹 *Sheng shen.* T'ao Hung-king says :—It grows by waysides in low, damp places; resembles the *kü hua* (Chrysanthemum).

P., XV, 35, *Süan fu hua*, a composite plant with yellow flowers described. The drawings s.n. *Kin huang*, XLVI, 16, and *Ch.*, XI, 68, represent an *Inula*. *So moku*, XVII, 5, 旋覆 *Inula japonica*, Thbg. This is a common plant in North China.

E., 120, family 金錢花.

C., 475, *Inula Britannica*, L. *Index Fl. S.*, 428.

Sm., 119. *Jap.*, 1150.

140.—苧 *Tsz'*; 麻母 *Ma mu* (mother of hemp).

Kuo P'o:—Ripe seeds of the 苴麻 *Tsü ma* (female hemp plant). This is the seed of the common hemp *Cannabis sativa*, L. In *P.*, XXII, ii, it is described under the name of 大麻 *Ta ma* (great hemp). *Ch.*, I, 3, under the same name, a good drawing of the plant. Also *Kiu huang*, LVII, ii. *So moku*, XX, 52, 大麻 *Cannabis sativa*.

E., 39, family 麻, sub-family 大麻, figure *Cannabis sativa*. The two names from the *Rh ya* are not there. *Sm.*, 26, 50, 61.

141.—[illegible] *Cho*; [*v. supra* 58] 九葉 *Kiu ye* (nine leaves).

Kuo P'o:—There is now in Kiang tung a plant called 五葉 *Wu ye* (five leaves).

142.—藐 *Mo* (*miao*); 茈草 *Ts'z ts'ao*.

Kuo P'o:—A plant used in dyeing a purple colour. *Kuang ya* calls it 茈蔓 *Ts'z lei*.

Hing Ping:—The *Pen ts'ao* has the name 紫丹 *Ts'z tan*. The *Ts'z ts'ao* is repeatedly mentioned in the *Shan hai king*.

The name is now written 紫草 *Ts'z ts'ao* (purple herb). *P.*, XIIb, 39, states that this plant has a purple flower and a purple root, used in dyeing. This is the *Lithospermum erythrorhizon*, S. & Z., much employed in China as a dye. The plant is figured under the above Chinese name in *Ch.*, VII, 46. See also Henry, *Chinese Names of Plants*, 508.

Amœn exot., 784, 紫草 *Siso, i.e.*, purpura, vulgo *murasakki*, nobilis. Herba pedalis radice ..... ab infectoribus ad tingendum sericum expetita. Thunberg, in his *Flora japonica*, 248, refers Kæmpfer's *siso*, erroneously, to *Ocimum crispum* [*v. supra*, 64]. Kæmpfer means, no doubt, *Lithospermum erythrorhizon*. Siebold, *Syn. pl. œcon.*, 191, *Lithospermum murasakki*.

E., 159, family 紫草. The two figures are copies from *S.*, II, 36. One is probably meant for *Lithospermum*, the other for an *Amaryllidea*.

C., 1420, 1414. *A.*, XV, 163, *Anchusa officinalis*, L., (acc. to Loureiro).

Jap., 1307, *L. erythrorhizon*, S. & Z., (Var. of *officinale*, L.).

143.—倚商 *I shang*; 活脫 *Huo t'o.*

Kuo P'o:—Same as 離南 [*v. supra*, 82, *Aralia papyrifera*].

144.—藢 *Chi*; 黃蒢 *Huang ch'u.*

Kuo P'o:—The *chi* plant has leaves which resemble those of the *suan tsiang* (*Physalis*, *v. supra*, 55). Small white flowers, yellow in the centre. In Kiangtung they salt and pickle it.

The *chi* is noticed in *P.*, XVI, 33, sub *suan tsiang* (*Physalis*). The plant is mentioned in the *Ku kin chu* [4th century] under the name of 苦藢 *K'u chi.* It seems to be a species of *Physalis.* In the *So moku*, III, 45, 苦藢 is *Physalis angulata*, L.

E., 64, family 蕺. The figure represents *Houttuynia cordata*, Thbg. *P.*, XXVII, 24.

Jap., 1099. *Jap.*, 1622, *Physalis angulata*, L., 苦藢.

145.—藒車 *Kie ch'e*; 芑輿 *K'i yü.*

Kuo P'o:—A fragrant plant mentioned in the Li sao [*v. infra*, 419].

146.—權 *K'üan*; 黃華 *Huang hua* (yellow flower).

Kuo P'o:—It is now called 牛芸草 *Niu yün ts'ao.* It has yellow flowers; the leaves resemble those of the 苜蓿 *Mu su* (*Medicago sativa*).

Hing Ping quotes the *Shuo wen*, where it is stated that the 芸 *Yün* plant resembles the 目宿 *Mu su* (*Medicago*) and that according to the *Huai nan tsz'* it dies and then sprouts again. Mentioned in the *Li ki.*

V. infra, 409.

E., 108, family 芸. The figure bad, *Melilotus?*

Jap., 1957, *Ruta graveolens*, L.

147.—蕤 *Wei (mi)*; 春草 *Chun ts'ao.*

Kuo P'o:—According to the *Pen ts'ao*, this is the 芒草 *Mang ts'ao.*

Hing Ping:—T'ao Hung-king says its popular name is 菵草 *Wang ts'ao.*

V. infra, 464.

E., 111, family 茵, without figure.

The names of *infra*, 151, are also found here.

E., 110, family 莽草. Figure insufficient.

E., 157, family 白薇. Figure apparently of *Asclepiadea. Jap.*, 2330, *Vincetoxicum atratum*, M. & Decn. The same names are found here as in the *Rh ya.*

148.—蒸葵 *Chung k'ui*; 蘩露 *Fan lu.*

Kuo P'o:—This is the 承露 *Ch'eng lu.* A great (long?) stem, small leaves, violet and yellow flowers.

P., XXVII, 23, 落葵 *Lo k'ui.* The above names given as synonyms. The plant is also called 燕脂菜 *Yen chi ts'ai* (cosmetic vegetable). It is a trailing pot herb, with glabrous, succulent leaves, resembling in shape those of the apricot tree; small purple flowers in spikes, followed by black globular fruits resembling those of the *wu wei* [see the next]. Women use the purple juice of the berries to paint their faces.

This description does not correspond to the plant intended in Kuo P'o's commentary. The *lo k'ui* of the *Pen ts'ao kang mu*, is *Basella rubra*, L. It is well figured in *Ch.*, IV, 6. At Peking it is cultivated under the popular name 胭脂豆 *Yen chi tou* (cosmetic pea), for the purple juice of the black berries is used as a cosmetic.

So moku, II, 70, 落葵 *Basella rubra*, L.

E., 85, family 葵 [*v. supra*, 136]. The figure for 菟葵 is apparently *Basella rubra*, L. *Jap.*, 323.

149.—蕤 *Wei*; 荎蕤 *Ch'i ch'u.* [Comp. also 240].

Kuo P'o:—Same as the 五味 *Wu wei.* A climbing plant. Fruits at the end of the stem.

HING PING:—Other names found in the *Pen ts'ao* are 會及 *Hui ki*; 玄及 *Hüan ki*. An author of the T'ang dynasty says:—The flesh of the fruit is sweet and acid, the kernels (seeds) are bitter and acrid; the whole has a saline taste, whence the name *wu wei* (five tastes). The fruit resembles that of the *lo k'ui* (*Basella*), it is of the size of a cherry. The leaves resemble those of the apricot tree.

P., XVIII*a*, 4, 五味子 *Wu wei tsz'*, also 玄及 *Hüan ki*. The ancient authors describe it as a plant with a red stem, climbing on trees; leaves roundish, pointed: yellowish white flowers; fruit of the size of a pea, used in medicine; it contains two kernels (seeds) which resemble pig's kidneys in shape. This is the *Schizandra chinensis*, Baill., a common climbing shrub in North China. Its berries are known in the apothecaries' shops as *wu wei tsz'*. They have the same name in Hupei. *See* HENRY, *l.c.*, 527. *See* drawing *Ch.*, XXII, 5.

Amœn. exot., 476, sub. 玄及, with figure, *Kadsura japonica*, L., a Japanese plant, allied to *Schizandra*, SIEB. & ZUCC., *Flora japon.*, I, 40, tab. 76, *Kadsura japonica*, Chinese name 南五味 (southern *wu wei*), and SIEBOLD, *Icon. japon. inedit.*, I, we find the name 北五味 (northern *wu wei*) applied to *Schizandra chinensis*. Comp. also *Phon zo*, XXV, 2–6, 五味子 *Schizandra chinensis* and *Sch. nigra*. The first is said there to be a Corean plant.

E., 170, family 五味子. The two figures are taken from *S.*, II, 5, where three can be seen.

Pr., 257, *Antidesma Bunius*, Spr.

C., 1477, *Schizandra chinensis*, Baill. *Jap.*, 2011.

Sm., 126, *Kadsura* (*chin.*) *japonica*, L. *Jap.*, 1209.

150.—蓀 *T'un*; 委葉 *Wei ye*. [Comp. 19.]

KUO P'O refers to the *Shi king*, 茶蓼 [*v. infra*, 365].

151.—皇 *Huang*; 守田 *Shou t'ien* (guardian of the fields).

Kuo P'o :—It resembles the 燕麥子 *Yen mai tsz'* [swallow wheat, *v.* 32] and the 彫胡米 *Tiao hu mi*. It grows in abandoned fields; is edible. Another name is 守氣 *Shou k'i*.

Hing Ping :—*Tiao hu mi* is the same as 菰 *Ku* [*Hydropyrum*, *v. infra*, 350].

P., XXIII, 16, identifies this plant of the *Rh ya* with the 茼草 (the first character to be pronounced 綱 *Kang*), a plant mentioned in the *Pen ts'ao shi i* [8th century], as a plant growing in inundated fields, and resembling wheat, but smaller. It ripens (the grains) in the fourth month and can be eaten. The *Rh ya i* writes the name of this plant 蒗 *Wang* and identifies it with the *huang* or *shou t'ien* of the *Rh ya*. [Comp. *K.D.*]. It is not to be confounded with the 蒗草 *Kang ts'ao* noticed in the *Shan hai king* as a plant with leaves like the mallow—red stem, white flowers. Fruit resembles the wild grape; it is said, when eaten, to remove stupidity.

The 茼草 figured in the *Phon zo*, XLII, 2, seems to be *Beckmannia erucæformis*, Host., [also *Jap.*, 336].

V., supra, 147.

152.—鉤 *Kou*; 藦姑 *Kui ku*.

Kuo P'o :—Same as the 鉤婁 *Kou lou* or 王瓜 *Wang kua*. The fruit resembles that of the 瓜 *Cho kua* [*v.* 58], is of a red colour and of a bitter taste.

Hing Ping :—The *Pen ts'ao* calls it 王瓜 *Wang kua*, also 土瓜 *T'u kua*. T'ao Hung-king says, the *t'u kua* grows (climbs) on fences; it has a red globular fruit and a large root. An author of the T'ang dynasty says that it is a climbing plant with leaves resembling those of the *kua lou* (*Trichosanthes*), but not lobed. Fruit resembles that of the 梔子 *Chi tsz'* (*Gardenia*); it is at first green, but red when ripe; no angles. The root resembles that of the 葛 *Ko* (*Pachyrhizus*), but is smaller and mealy.

See *infra*, 386, *Thladiantha dubia*, Bge., and *supra*, 34.

E., 45, family 王瓜.

Jap., 2224, *Trichosanthes cucumeroides*, Ser.

153.—望 *Wang*; 棄車 *Sheng che.*

Kuo P'o:—It is more than ten feet long; can be made into cordage.

154.—困极祥. Unknown to the Chinese commentators.

155.—攫 *Kuo*; 烏階 *Wu kiai.*

Kuo P'o:—This is the 烏杷 *Wu p'a.* Its fruit resembles the 杷齒 *P'a ch'i.* It affords a black dye.

Hing Ping:—Popular name 狼杷 *Lang p'a.*

P., XVI, 62, 狼把草 *Lang pa ts'ao.* It is described by the ancient authors as a plant resembling the 鬼針 *Kui chen* (devil's needle, Bidens), the fruit having forked needles. It is used in dyeing black. *Ch.*, XIV, 39. The figure is rough, does not resemble Bidens. But in the *So moku*, XV, 58, 狼把草 is *Bidens tripartita*, L.

E., 126, family 郎罷. The figure, if meant for *Bidens*, is bad, in *P.* not better. *Jap.*, 347, *B. tripartita*.—346, *B. pilosa*, L., is 鬼鍼草.

156.—杜 *Tu*; 土鹵 *Tu lu.*

Kuo P'o:—This is the same as the 杜衡 *Tu heng.* It resembles the 葵 *K'ui* (*Malva*); is fragrant.

Hing Ping:—The *T'ang Pen ts'ao* says:—The leaves of the *tu heng* resemble in shape a horse's hoof, whence the name 馬蹄香 *Ma ti hiang* (horse's hoof fragrance). It grows in the mountains, in damp places. The root resembles that of the 細辛 *Si sin* (*Asarum*, *v. infra*, 414).

The *tu heng* is mentioned in the *Shan hai king.* Kuo P'o explains there that it is a fragrant plant; horses fed on it travel fast.

V. infra, 414, *Asarum.*

E., 148, family 杜衡. The two figures have no resemblance to *Asarum*. The figure to *P.*, XIII, 54, differs from them.

B. Ligularia Kœmpferi, S. & Z. = *Senecio*, K. Dl., unlikely.

Jap., 235, *Asarum Blumei*, Duch.

157.—盱 *Hü*; 虺牀 *Hui ch'uang* (serpent's bed).

Kuo P'o:—Same as 蛇牀 *She ch'uang* and 馬牀 *Ma ch'uang*, according to the *Kuang ya*. In the *Pen ts'ao* we find, besides the above-mentioned, the names 蛇米 *She mi*, 思益 *Sz' i*, 繩毒 *Sheng tu*, 棗棘 *Tsao ki*, 牆蘼 *Ts'iang mi*.

P., XIV*a*, 10, 蛇牀子 *She ch'uang ts'z*. Described as a fragrant umbelliferous plant, the seeds of which are used in medicine. The *Kiu huang*, XLVI, 21, and the *Ch.*, XXV, 4, figure under the above name an umbelliferous plant.

According to Tatarinov, *Catal. med. sin.*, 52, *She ch'uang ts'z* are the seeds of a *Cnidium*; from Hanbury's investigations (*Science Papers*, 233), it appears that they belong to *Cnidium Monnieri*, Cuss., (*Selinum Monnieri*, L.). This is a common plant all over China. [See *Index Florae sin.*, 333]. It has not been recorded from Japan.

E., 167, family 蛇牀, with a good figure, apparently from nature.

S., II, 7. *A.*, XV, 154. *C.*, 1114. *Sm.*, 67.

158.—蒜薪. Unknown to the Chinese commentators.

159.—赤苞 *Ch'i fu*; 薊 *Ki*.

V. supra, 8.

160.—菟奚 *T'u hi*; 顆凍 *K'o tung*.

Kuo P'o:—This is the 款凍 *K'uan tung*. Purple flowers. Water plant.

Hing Ping:—In the *Pen ts'ao* we find also the names 豪吾 *T'o wu*, 虎鬚 *Hu sü*. T'ao Hung-king says its flowers resemble the *kü* (*Aster* and *Chrysanthemum*).

P., XVI, 38, 款冬花 *K'uan tung hua.* Described as a plant which flowers in the twelfth month while the ground is still frozen. Its yellow flowers shoot forth from the roots, and are used in medicine.

The plant represented under the above name in *Ch.*, XI, 44, resembles *Tussilago farfara*, L. The *Kiu huang*, XLVI, 5, figures only the leaves. LOUREIRO, *Flora cochin.*, 614, *Tussilago farfara*, Chinese *koan tum hoa.* TATARINOV, *Catal. med. sin.*, 27, *K'uan tung hoa*, *Flores Farfarae.* The *Index Florae sin.*, however, does not mention this plant; nor has it been gathered in Japan. There is in Japan a plant allied to it, the *Petasites japonicus*, Miq., and to this the Chinese name 款冬花 is applied there. See *So moku*, XVII, 25, 26. This plant is also known from Central China. See also HENRY, *Chinese Names of Plants*, 124.

E., 119, family 款冬, good figure, but only radical leaves of a *Senecionidea.*

S., III, 21, has two figures, one probably *Gerbera Anandria*, Sch. Bip., the other a widely separated plant.

C., 650. *A.*, XV, 159. *Tussilago Farfara*, L., and *Petasites japonicus*, Miq., (in Japan).

A., XV, 160, *Anandria Bellidiastrum*, D. C. (= *Gerbera An.*).

Jap., 1593, *Petasites jap.*, Miq.

161.—中 蒩 *Chung k'ui*; 菌 *Kün.*

The drawing in the *Rh ya* represents a mushroom.

KUO P'O:—Same as 地蕈 *Ti sin.* It resembles the 蓋 *Kai.* In Kiang tung it is called 土菌 *T'u kün* or 蒩厨 *K'ui ch'u.*

E., 52, family 菌. Three figures and 45 names.

All *Fungi* known to the Chinese are grouped under the three headings 芝 *E.*, 48–51, 菌 52, and 木耳 also 52. There are 66, 45 and 26 names enumerated, total 137.

162.—小者菌. The smaller kind is called *kün.*

HING PING explains that the large kind [161] is called *chung k'ui*, whilst the small one [162] is simply *kün.* The

kün grows on trees. The *Shuo wen* explains 蕈 *Sin* by 桑蘑 *Sang rh* (mushrooms on the mulberry tree). There is also a mushroom called 地蕈 *Ti sin* or 地菌 *Ti kün*.

All the above names [161, 162] refer to mushrooms, probably species of *Agaricus*. See *P.*, XXVIII, 32.

In 1877, I forwarded to the Botanic Garden, St. PETERSBURG, a collection of the dried mushrooms sold in the Peking markets. They have been examined by Messrs. KALCHBRENNER and THÜMEN (Vienna) and proved to belong, for the greater part, to the genus *Agaricus*. The 香蕈 *Hiang sin*, or fragrant *sin*, a large mushroom, was found to be new and has been named *A. Bretschneideri*.

The 蕈 is mentioned in the *Amœn. exot.*, 832, *tan* vulgo *taki*. *Fungus vulgaris, esculentus, albidus*, etc. THUNBERG, *Flora japon.*, 347, refers it to *Agaricus*.

Agaricus deliciosus, L., *v. A.*, XV, 184.

163.—菨小葉. Unknown to the Chinese commentators.

164.—苕 *T'iao*; 陵苕 *Ling t'iao*.

KUO P'O:—It is also called 陵時 *Ling shi* in the *Pen ts'ao*.

E., 106, family 苕. Good figure of *Tecoma grandiflora*, Delaun. *Jap.*, 2081, 紫葳 is among the synonyms.
S., XII, 30. *C.*, 733, 靈霄花 and 淩霄花. *Pr.*, 246. *A.*, XV, 165. *Sm.*, 38.

165.—黃華蔈 that with yellow flowers is called *piao*.
白華茇 that with white flowers is called *p'ei* (*po*).

KUO P'O:—*T'iao* flowers, variously coloured.

HING PING (referring to 164 and 165), the *t'iao* with yellow flowers is *piao*, that with white flowers *p'ei* (*po*). Mentioned in the *Shi king*. CHENG HÜAN, in his commentary, says the *ling t'iao* has purple flowers.

V. infra, 448, *Bignonia grandiflora*.

The above name 陵苕 *Ling t'iao* is given in the *Pen ts'ao king* as a synonym for 紫葳 *Ts'z wei*. *P.*, XVIII*a*, 29, *ts'z wei*, also *ling t'iao* and 陵霄 *Ling siao*. The ancient authors describe it as a plant, wild in the mountains and cultivated, climbing on trees; serrate leaves; flowers of the size of the flowers of the 牽牛 *K'ien niu* (*Pharbitis*) as large as a cup, orange coloured, dotted; the fruit is a pod three inches long; the seeds resemble the fruit of the elm (winged).

Ling siao at Peking is the name for *Tecoma* (*Bignonia*) *grandiflora*, Del., with which the above description agrees. The flowers are much used as a medicine. *Ch.*, XXII, 25, good drawing.

Amœn. exot., 856, 陵苕, *rjotsio* is *Bignonia grandiflora*, the same figured in Banks' *Icones Kæmpferi*, tab. 21. The same plant is represented in the *Phon zo*, XXVI, 18, 19, sub 紫葳. I cannot account for the name *ts'z wei* (purple *wei*)[7] given to the plant, nor for the white flowered *ling t'iao* of the *Rh ya*. *Bignonia grandiflora* has orange coloured flowers.

166.—蘼蕪 *Mei tsung*; 水生 *Shui sheng*.

Kuo P'o:—It grows in water, whence the name.

167.—薇 *Wei*; 垂水 *Ch'ui shui* (drooping to the water).

Kuo P'o:—It grows by the edge of the water, whence the name. *P.*, XXVII, 26, *Vicia*. [*V. infra*, 378.]

E., 63, family 薇. Good figure of a *Vicia*.

168.—薜 *Pi*; 山麻 *Shan ma* (mountain hemp).

Kuo P'o:—Same as the common cultivated *ma* or hemp, but growing wild in the mountains.

E., 39, p. 17, family 蓧. The figure indicates perhaps an *Urtica*. [*V. infra*, 388.]

[7] The *Kuang ya* writes this name 茈蕨 *Ts'z' wei*.

169.—莽 *Mang*; 數節 *Shu tsie* (many joints).

Kuo P'o:—A kind of 竹 *Chu* or bamboo with its joints close together.

E., 186–196, family 竹, with a good figure of Bamboo.

Many local names taken from geographical works are mentioned in *E.*, 189, p. 11-17.

170.—桃枝 *T'ao chi* (peach tree branch). 四寸有節 (the joints four inches apart). A Bamboo.

Kuo P'o:—A distance of four inches between the joints. [Comp. *infra*, 456.]

171.—鄰 *Lin*; 堅中 (solid centre).

Kuo P'o:—A bamboo with a solid centre (not hollow).

172.—簡 *Min*; 筩中 *T'u chung*.

Kuo P'o:—Bamboo with a hollow stem.

173.—仲無 *Chung wu*; 筐 *Kang*.

Kuo P'o:—A kind of bamboo.

174.—箾 *Tai*; 箭萌 *Tsien meng* (sprouts of the *tsien* bamboo).

Kuo P'o:—A kind of 筍 *Sun* (bamboo sprout). The *Chou li* quoted. [*V. infra*, 374.]

篠 *Siao*; 箭 *Tsien* (Bamboo. *See also above*, 42, 43).

Hing Ping (referring to 169-174):—The above names refer to various kinds of bamboos, with their joints close together or far apart. The 篠 *Siao* is mentioned in the *Shu king*. According to Cheng Hüan and K'ung An kuo the 桃枝 was used for making mats.

Regarding the bamboos *see also below*, 563, 564.

175.—枹霍首素華軌觳. All unknown to the Chinese commentators.

176.—苴 *Tu* (*T'u*); 夫王 *Fu wang*.

Kuo P'o :—The *tu* plant grows on the shore of the sea. It resembles the 莞蘭 *Kuan lin*. Now the people of 越 Yüeh in the south use it for making mats.

The *Shuo wen* says that *lin* is a sort of *kuan* (rush, *v.* 16).

Amœn. exot., 900, 蔺 *Kin*, vulgo *Sickiso*. Juncus sativus, prælongus, lævis, tenuis, tensus, in agris paludosis in modum orizæ colendus, ex quo, irrigationibus et insolatione dealbato, texuntur nitidissimi tapetes, quibus duplicatis et gluma fartis sternuntur pavimenta. THUNBERG, *Flora jap.*, 145, identifies this with *Juncus effusus*, L. SIEBOLD, *Syn. pl. œcon. Jap.*, 47, 蔺, also 燈心草 *Teng sin ts'ao*, *Juncus effusus*, L. Pro tapetibus, pileis, velis. *Ibidem*, 48, 注芊 *Juncus lin kin wi*. Præcedentis usus. See drawing in *Phon zo*, XVIII, 14, under the same Chinese name, which HOFFM. & SCHULTES, 193, give as one of the names for *Cyperus rotundus*, L. Perhaps one of the above names refers to *Cyperus tegetiformis*. [*V. infra*, 455.]

E., 134, family 夫王, without figure and only the two names from the *Rh ya*. *Jap.*, 1200, *Juncus communis*, E. Mey., *var. effusus* 燈心草.

177.—蕨 *K'i*; 月爾 *Yüe rh*.

Kuo P'o :—This is the 紫蕨 *Ts'z k'i*. It resembles the 蕨 *Küe* (a fern, *Pteris aquilina*) and can be eaten.

Ch., VI, 34, *küe ki* or *ts'z k'i*, figures a fern which looks like *Botrychium daucifolium*, Wall.

E., 63, family 蕨. The figure is a copy of *S.*, X, 25, and has no resemblance with a *fern*. *P.*, XXVII, 25, has a good figure. *H.*, 91. *Jap.*, 1794.

178.—蔵 *Chen*; 馬藍 *Ma lan* (horse's indigo blue).

Kuo P'o :—It is now called 大葉冬藍 *Ta ye tung lan*, (winter indigo with large leaves).

HING PING :—This is the 澱 *tien* (Indigo).

It cannot be decided to which of the Chinese tinctorial plants furnishing a blue colouring matter [*v. infra*, 392] the

Ma lan is to be referred. The ancient Chinese commentators quoted in *P.*, XVI, 74, article *lan*, are in contradiction as to the identification.

E., 105, family 藍. Figure probably of *Polygonum tinctorium*, Lour.

A., XV, 125, 169. *Sm.*, 116. *Jap.*, 1717.

179.—姚莖涂薺. Unknown to the Chinese commentators.

180.—芣 *Hu*; 地黃 *Ti huang* (earth yellow).

Kuo P'o :—Another name is 地髓 *Ti sui* (earth marrow, *Kuang ya*). In Kiang tung it is called *Hu*.

Hing Ping :—The *Pen ts'ao* gives, besides the above names, the name 芭 *Pa* (in other editions 苞 *K'i*). T'ao Hung-king says it grows at 渭城 Wei ch'eng (now Hien yang hien, in Southern Shensi).

P., XVI, 1, 地黃 *Ti huang*. The ancient authors say that the plant has large, wrinkled leaves, covered with hairs; tubular flowers resembling those of *chi ma* (Sesamum), purplish red or yellow. Fruit a capsule resembling that of the *Lien k'iao* (Forsythia, *v.* 120) and containing small seeds. The root looks like a man's hand; it is of a yellow colour, succulent, used in medicine. The young leaves are eaten.

At Peking *Ti huang* is *Rehmannia glutinosa*, Lib. The above description agrees. Good drawings of the plant in the *Kiu huang*, LIII, 3, and in *Ch.*, XI, 8. The latter figures two varieties, one with voluminous roots. In some parts of China *Rehmannia* is cultivated for the yellow colouring matter of the roots. *See* Du Halde, *La Chine*, I, 26, and Grosier, *La Chine*, III, 340. The *ti huang* figured in the *Rh ya* looks rather like *Leontodon taraxacum*, L.

So moku, XI, 63, 64, 地黃 *Rehmannia glutinosa*, Lib., and *R. lutea*, Maxim., (Japan). A third Eastern Asiatic species, *R. Piasetzkii*, grows in Southern Shensi.

E., 137, family 地黃, with a good figure.

S., I, 7, has two different figures.

C., 1264. *Sm.*, 184, 69, also *Comfrey*, a *Boraginea*.

E, 140, family 沙參, *Adenophora*, *Ti huang* is given as a synonym.

Jap., 1865, as name of *Rehm. lutea*, Max.; 1864, *R. glut.* = 胡面莽.

181.—蒙 *Meng*; 王女 *Wang nü*.

Kuo P'o:—Same as the 唐, another name for 女蘿.

V. supra, 131, *Cuscuta*, and *infra*, 450.

E., 169, family 菟絲 [*v. supra*, 131] writes 玉女 instead of 王女.

182.—拔 *Pa*; 龍葛 *Lung ko*.

Kuo P'o:—It resembles the 葛 *Ko* (*Pachyrhizus*), is a climbing plant with joints. In Kiang tung it is called 龍尾 *Lung wei* (dragon's tail) also 虎葛 *Hu ko*. Small leaves, red stem.

P., XVIII*b*, 35, refers these names to the 烏蘞莓 *Wu lien mei*, described as a climbing plant with a white root, pentaphyllous leaves. The fruit resembles that of the 龍葵 *Lung k'ui* (*Solanum nigrum*), and contains small seeds. The drawing in *Ch.*, XXII, 74, under *Wu lien mei*, represents a *Vitis*, not unlike the drawing in the *So moku*, II, 58, 烏蘞苺 which is *Vitis pentaphylla*, Thbg. The *Phon zo*, XXXI, 5, 6, has under the same Chinese name, *V. pentaphylla* and *V. japonica*, Thbg.

E., 179, family 烏蘞苺, with good figure.

Jap., 2372, *Vitis pentaphylla*.

183.—蘧 *Su*; 牡茅 *Mou mao*.

Kuo Po:—A kind of 白茅 *Pai mao*.

V. infra, 459, *Imperata*.

E., 103, [*v. supra*, 48].

184.—菤耳 *Kuan rh*; 苓耳 *Ling rh*.

Kuo P'o:—The *Kuang ya* calls it 枲耳 *Si rh* and 胡枲 *Hu si*. In Kiang tung it is 常枲 *Chang si* and *Ling rh*. It (the fruit) resembles a mouse's ear.

V. infra, 436, *Xanthium strumarium*, L.

E., 156, family 蒼耳, with a good figure of *Xanthium str.*

C., 1329, 1330. *Pr.*, 98, 148. *Sm.*, 233. *Sm.*, 45, also *Arctium sp. Jap.*, 2388.

185.—蕨 *Küe*; 薜 *Pie.*

Kuo P'o:—The *Kuang ya* says that the *Küe* is the same as the 蕨蘦 *Ts'z' k'i* [*v.* 177], but that is wrong. The young plants can be eaten. The name *pie* is usual in Kiangsi.

V. infra, 377, a fern, *Pteris aquilina*, L.

186.—蕎 *K'iao*; 邛鉅 *K'iung kü.*

Kuo P'o:—This is the 大戟 *Ta ki*, a medicinal plant, according to the *Pen ts'ao.*

Hing Ping:—The *Pen ts'ao* calls it also 澤漆 *Tse ts'i* (marsh varnish). T'ao Hung-king says it is a common plant by waysides, and contains a white, milky juice.

P., XVII, 13, *ta ki*, a poisonous plant. The *Chi wu* figures under this name, XXIV, 13, a *Euphorbia*. *So moku*, IX, 17, 大戟 *Euphorbia lasiocaula*, Boiss.

The *tse ts'i* is another species. *P.*, XVII, 20; *Ch.*, XXIV, 15.

So moku, IX, 16, 澤漆 *Euphorbia helioscopia*, L.

E., 162, family 大戟, figure of *Euphorbia*, copy of *S.*, IV, 19. *C.*, 1215. *Sm.*, 95. *Jap.*, 918, *E. lasiocaula.*

E., 140, family 澤漆. The figure cannot mean a *Euphorbia*, but an *Apocynacea*. The figure to *P.*, XVII, 20, points to *E. helioscopia*, L.

187.—繁由胡. Unknown to the Chinese commentators.

188.—惹 *Wang*; 杜榮 *Tu yung.*

Kuo P'o:—The *wang* grass resembles the 茅 *Mao* [*v.* 459, *Imperata*]. Of the outer skin they make ropes and shoes.

P., XIII, 49, 芒 *Mang*, a plant first spoken of in the *Pen ts'ao shi i* [8th century] and identified with the *wang* of

the *Rh ya*. It is also called 芭芒 *Pa mang* or 芭茅 *Pa mao*, and used for making screens.

The drawing of this plant in *Ch.*, VIII, 32, represents a *Gramineæ*. HENRY, *Chinese Names of Plants*, 329, identifies it with the 八王草 *Pa wang ts'ao*, which in Hupei is the name for *Erianthus japonicus*, Beauv., (*Eulalia japonica*, Trin.), a large grass.

Phon zo, VIII, 2, 芒, a *Gramineæ*, according to HOFFM. & SCHULTES, 229, *Erianthus japonicus*. SIEBOLD, *Syn. plant. œcon. jap.*, 39, *Erianthus japonicus, sinice* 菅芒 or 荻 or 茅. [*V. infra*, 459].

E., 110, family 芒. Figure certainly not intended for a *Gramineæ*. It may mean a *Cyperidea*, but looks more like *Aletris japonica*, Lamb. The figure to *P.*, XIII, 49, represents a grass. *Jap.*, 904, *Eulalia jap.*, Tr.

189.—稂 *Lang*; 童粱 *T'ung liang*.

KUO P'O:—A kind of 稂莠 *Lang yu* [darnel, *c. infra*, 462, 463, *Gymnothrix*].

E., 106, family 稂. Figure of a *Gramineæ*, large kind.

190.—蘠 *Ao* (*piao*, *W.D.*, 682). 麃 *P'ao* (*piao*, *W.D.*, 682).

KUO P'O:—*P'ao* is the same as 莓 *Mei*. In Kiang tung it is called *p'ao mei ts'z*. It resembles the *ju p'en* [*Rubus*, *c.* 133], but is larger. The fruit is acid and sweet. It can be eaten.

Some authors quoted in *P.*, XVIII*a*, 7, identify this with the 蓬藟 *P'eng lei* [*c. infra*, 436, *Rubus*].

Regarding the above characters, *piao* and *pao*, comp. HENRY, *Chinese Names of Plants*, 344–351. At Ichang it signifies berries like those of *Rubus* and *Fragaria*. *Mei* has the same meaning [*c. supra*, 127]. *Piao* means also sedge grass [*c. infra*, 209].

[*V. supra*, 133, 127].

191.—的 *Ti*; 蔍 *I* (*hi*).

Kuo P'o:—The fruit of the 蓮 *Lien* (Lotus flower, which is also represented in the accompanying figure). [*V. supra*, 101.]

192.—購 *Kou*; 蒿蔞 *Shang lou*.

Kuo P'o:—Same as 蔞蒿 *Lou hao*. It grows in low fields. The young plants are eaten. In Kiang tung the people cook them with fish.

[*V. infra*, 430, *Artemisia*].

E., 62, family 蒿, sub-family 蔞蒿, bad figure of a young *Artemisia*.

193.—蒚 *Lie*; 勃蒚 *Pu lie*.

Kuo P'o:—According to the *Pen ts'ao*, same as 石芸 *Shi yün*.

Hing Ping:—The *Pen ts'ao* says that it is of a sweet taste. Other names 鰤烈 *Shi lie*, 顧喙 *Ku hui*.

P., XXI, 16, *shi yün*. A medicinal plant mentioned in the *Pie lu*, stem and leaves used. Not poisonous; sweet taste. The plant figured in the *Phon zo*, V, 22, sub. 蒚 is an *Orobanchacea*.

E., 110, family 蒚, without figure.

194.—要繞 *Yao jao*; 蘇菀 *Ki yüan*.

Kuo P'o:—According to the *Kuang ya*, this plant is now called 遠志 *Yüan chi*. It resembles the 麻黃 *Ma huang* (*Ephedra*). Red flowers; leaves pointed, yellow. Its top is called "small plant" (其上謂之小草).

Hing Ping:—It is a medicinal plant. In the *Pen ts'ao* it is also called 細草 *Si ts'ao* (fine plant), the leaves are called 小草 *Siao ts'ao* (small plant). T'ao Hung-king says that it resembles the *ma huang*, but is green.

The name of *Yüan chi* is now applied to the *Polygala*. *P. sibirica*, L., and *P. temuifolia*, Willd., are common in North

China. *P.*, XII*b*, 21. The account given of the plant in the *Kuang ya* and by Kuo P'o is absurd.

[*V. infra*, 443].

E., 133, family **遠志**. The six figures may all represent varieties of *Polygala*.

S., I, 23, has three figures, copied in *E.*

C., 1557. *Sm.*, 175.

195.—**菜** *Ts'e*; **刺** *Ts'z'*.

Kuo P'o :—**草刺針**, the thorns or prickles of plants. In Kuan si they say **刺**; in **燕** Yen (Chili Province) and northward, towards Ch'ao sien (Corea), they say **菜**. See the *Fang yen*.

Hing Ping :—According to the *Fang yen*, other names for thorn are **梗** *keng* and **劌** *kui*. In **江湘** Kiang siang (Hunan) they say **棘** *ki*.

196.—**蕭** *Siao*; **萩** *T's'iu*. (Some editions write **荻** *Ti*.)

Kuo P'o :—Same as **蒿** *hao* (Artemisia).

The name *siao* occurs also in the *Shan hai king*. [*V. infra*, 435, *Artemisia*.]

E., 110, family **荻**. The figure has no resemblance to an *Artemisia*. The difference from the figure of *Artemisia capillaris* in the Japanese illustrations to the Book of Odes **毛詩品物圖攷**, p. 13, is very striking.

197.—**蓷** *T'an*; **海藻** *Hai tsao* (sea-weed).

Kuo P'o :—A medicinal plant, also called **海羅** *hai lo*; it grows in the sea and has the appearance of flowing hair. See the *Pen ts'ao*.

Hing Ping :—Another name found in the *Pen ts'ao* is **落首** *lo shou*. T'ao Hung-king explains :—It is found near some islands in the sea, is of a black colour, resembles hair. Large leaves resembling the **藻** *Tsao* [*v.* 401].

P., XIX, 26, **海藻** *hai tsao*, an edible seaweed.

Specimens of the *hai tsao*, obtained from Tientsin, and determined by Professor Agardh (Sweden) and Prof. Gobi

(St Petersburg) proved to belong to *Sargassum siliquastrum*, Agardh. According to HEPBURN, *Japan Dict.*, 海羅 or *funori*, in Japan, is a kind of sea-weed used for glazing and starching.

E., 66, family 藻 [*v. supra*, 111].
S., III, 13. *Sm.*, 5, *Agar-agar*.

198.—長楚 *Ch'ang ch'u*; 銚芅 *Yao* (*t'iao*) *i*.

KUO P'O:—It is now called 羊桃 *yang t'ao* (sheep's peach), also 鬼桃 *kui t'ao* (devil's peach). The leaves resemble those of the peach tree; white flowers: seeds like wheat; (the fruit?) resembles a peach.

[*V. infra*, 493, *Actinidia*.]

E., 151, family 萇楚. Figure may mean *Actinidia*.
Jap., 51, 52, differ. 獼猴桃 and 木天蓼 for *Actin.*

199.—蘦 *Ling*; 大苦 *Ta k'u* (great bitter).

KUO P'O:—It is now called 甘草 *kan ts'ao* (sweet herb); it is a creeping plant, leaves like those of the 荷 *ho* (*Nelumbium*), greenish yellow; the stem is red, has joints. Some say that the *ling* resembles the *ti huang* (*Rehmannia*).

The *kan ts'ao* is Liquorice, *Glycyrrhiza*. [*V. infra*, 425].

KUO P'O's account is absurd, but the ancient authors quoted in *P.*, XII*a*, 1, give a correct description of the plant: leguminous with pinnate leaves, violet flowers, sweet root. *Ch.*, VII, 6, *kan tsao*, represents a *Glycyrrhiza* with echinate legumes. *Gl. glabra* and *Gl. glandulifera*, which in Europe yield Liquorice, have both been recorded from North China by our botanists (*Index Florae sin.*, 168).

Phon zó, V, 1-2, 甘草 figures a *Glycyrrhiza* with glabrous legumes. As far as I know, no *Glycyrrhiza* has been gathered by European botanists in Japan.

E., 160, family 甘草, with three figures of a *Leguminosa* differing only in the roots.
C., 587. *Sm.*, 136.

200.—茅苜 *Fou i*; 馬舄 *Ma si*; 車前 *Ch'e ts'ien.*

Kuo P'o:—The *ch'e ts'ien* has large leaves and long flower spikes. It grows by waysides. In Kiang tung the people call it 蝦蟇衣 *hia ma i* (frog's coat).

V. *infra*, 439, *Plantago*, which plant is represented in the corresponding drawing of the *Rh ya*. The character 舄 means the sole of a shoe, and as the leaf of the *Plantago* resembles a sole, the plant received the above name. Written also 蒴 *si*. This explanation is given in *P.*, XVI, 54.

E., 162, family 車前, figure bad, whereas *S.*, I, 18, has a good one.

Sm., 172. *Pr.*, 181. *H.*, 20.

201.—綸似綸 *Lun sz' lun* (*lun* similar to *lun*).
組似組 *Tsu sz' tsu* (*tsu* similar to *tsu*).
東海有之. It is found in the Eastern Sea.

Kuo P'o:—*Lun* is a silken girdle worn by certain officers, *tsu* is a ribbon. The plant grows in the sea, is variegated, whence the name.

P., XIX, 24. Li Shi-chen refers this plant to the 昆布 *kun pu* or 綸布 *lun pu*, a large seaweed first mentioned in the *Pie lu*, and produced in the Eastern sea, near the coast of Corea. Drawing *Ch.*, XVIII, 12.

Amœn. exot., 833 昆布 *Firome* et *Kombu*. Fucus marinus lanceatæ formæ, orgia longior, margine dentato. Rupibus adnascens in maris superficie fluctuat, totus genti post præparationem esculentus, quamquam coriaceæ substantiæ. According to Thunberg, *Flora jap.*, 346, this is the *Fucus saccharinus*, L. or *Laminaria saccharina*, Lam. This sea-weed, which attains an immense size, is brought in large quantities from the Manchurian coast to China, where it is largely used for food. Its popular name is 海菜 *hai ts'ai* (sea vegetable).

E., 74, family 昆布, with figure of a large-leaved sea-weed. Comp. *supra*, 197.

202.—帛似帛 *Po sz' po* (*po* similar to *po*).

布似布 *Pu sz' pu* (*pu* similar to *pu*).

華山有之. It is produced on the Hua shan mountain.

Kuo P'o :—The above names are derived from the resemblance of the plant to 布帛 (pure white silk). It is said to be found on the Hua shan mountain (Southern Shensi).

203.—芫東蠡. Unknown to the Chinese commentators.

204.—緜馬 *Mien ma*; 羊齒 *Yang ch'i* (sheep's tooth).

Kuo P'o :—A hairy plant with small leaves resembling a sheep's tooth. In Kiang tung they call it 鴈齒 *Yen ch'i* (goose's tooth). It is used for reeling off silk (? 繅者以取繭緒).

205.—蒨 *Kua*; 麋舌 *Mi she* (deer's tongue).

Kuo P'o :—The leaves resemble a tongue.

206.—搴柜胸. Unknown to the Chinese commentators.

207.—蘩之醜 *Fan chi ch'ou* (ugly Artemisia fan, [*v. supra*, 12].

秋爲蒿. In autumn it becomes an Artemisia *hao*.

Kuo P'o :—The first name is given to the plant in spring, when it first begins to grow ; in autumn it is 蒿 *hao*.

Hing Ping :—It is a kind of Artemisia (蘩蕭蔚萩之類). Its smell and taste in spring are not the same as in autumn.

208.—芙 *Yao*; 薊 *Ki* [comp. 62].

其實莩 its fruit is called *hü (fu)*.

Kuo P'o :—The tufted head at the top of the stem of the *yao* and the *ki* (thistles, *Cnicus*, *Carduus*) is called 莩 *hü*.

Hing Ping refers to 62 and 8.

209.—**藨苧** *Piao hü (jü)*; **茶** *T'u.*

焱蕉 *Piao p'iao*; **芀** *T'iao.*

Kuo P'o:—Other names for **茶** *t'u* and *t'iao*. *T'u* and *t'iao* have the same meaning.

Hing Ping refers to the *Shi king* [Legge, 234, *v. infra*, 365).

Comp. above 48, and *infra*, 210. The above names all refer to rushes or sedges.—Hoffm & Schultes, 537, **蘆草** *Scirpus articulatus*, L.

210.—**葦** *Wei*; **醜芀** *Ch'ou t'iao.*

Kuo P'o.—This is **芀秀** *t'iao siu*, the *t'iao* in seed.

Hing Ping explains *wei* by **蘆之成**, the *lu* [see 213, reed] in grain. The *Shuo wen* explains **芀** *t'iao* by **葦華** *wei* flowers.

Wei, same as *lu*, [213] is the common reed, *Arundo phragmites*, L. *V. infra*, 455.

E., 109, family **蘆**, figure of a large *Graminea.*

S., IV, 38; *C.*, 768. *Sm.*, 171.

H., 253, *Phragmites Roxburghii*, Kth. *Jap.*, 1610, *Phr. communis*, Tr.

211.—**葭** *Kia*; **華** *Hua.*

Kuo P'o:—Same as the **蘆** *lu* [*v.* 213].

212.—**蒹** *Kien*; **薕** *Lien.*

Kuo P'o:—It resembles the **萑** *huan* (a reed, *v. infra*, 455] but is smaller, several feet high. In Kiang tung the name *kien* is usual.

Hing Ping writes **蒹薿** *kien ti* (second character same as **荻** *v. infra*, 455).

213.—**葭** *Kia*; **蘆** *Lu.*

Kuo P'o:—Same as *wei* [210].

Wei and *lu* both denote *Arundo phragmites* [*v. infra*, 455].

214.荻 *T'an*; 薍 *Wan*; 其萌蘢 its sprouts are called *k'ien* or *k'üan*.

Kuo P'o:—The *t'an* resembles the *wei* [210] but is smaller; it has a solid (not hollow) stem. It is a kind of 萑 *huan* [*v.* 212]. The name *k'ien* is now applied in Kiang tung to the sprouts of the *lu* (common reed, *v.* 213).

Hing Ping says (referring to 211-214):—Names of various reeds or rushes mentioned in the *Shi king*. The *wei* [210] when not yet ripe is called *kien* [212]. The *t'an* [214] is also called 荻 *ti*. In autumn when in full growth it is called 萑 *huan* (but Fan kuang, on the contrary, says, *huan* is the *t'an* when it begins to grow). [*V. infra*, 455.]

215.—蒲 *Yü*; 葦 *Wei (jui)*.

葟 *huang*; 華榮 *hua yung* (beauty of flowers).

Kuo P'o:—The 釋言 *Shi yen* says that *huang* is the same as *hua* (flower). The sprouts of herbaceous plants are called *wei*.

216.—卷施草 *Küan shi tsao*; 拔心不死 *Pa sin pu sz'* [it does not die when its heart is pulled up].

Kuo P'o:—Another name of the plant is 宿莽 *su mang*, by which it is mentioned in the *Li sao* [*v. infra*, 418].

Hing Ping:—王逸 Wang I [Han dynasty], in commenting upon the *Li sao*, states that it is a plant which does not die in winter, and which in 楚 Ch'u (Hu kuang) is called *su mang*.

217.—芸 *Yün*; 菱 *Kiao*.

Kuo P'o:—Now in Kiang tung the people call *kiao* the root-stock of the 藕 *ou* (*Nelumbium*), which is hollow inside.

Hing Ping:—*Yün* or *kiao* is the edible root of a plant. Nowadays the name *kiao* or *kiao pai* is applied to the young stalks of *Hydropyrum latifolium*. [*V. infra*, 350. Comp. also 38.]

218.—芠 *Kai*; 根 *Ken* (root).

Kuo P'o:—*Kai* is the popular name for 韭根 *kiu ken*, (root of *Allium odorum*).

Hing Ping takes *kai* to be a general name for roots of herbaceous plants, as do also the *Fang yen* and the *Shuo wen*.

219.—攫蒙含. Unknown to the Chinese commentators.

220.—華 *Hua*; 荂 *Hü (fu)*.

Kuo P'o:—In Kiang tung *hü* is another name for *hua* (flower).

221.—華 *Hua*; 荂 *Hü*; 榮 *Yung*.

Kuo P'o:—These terms explain themselves mutually. They all have the meaning of flower.

222.—木謂之華. The flower of a tree is *hua*.

草謂之榮. The flower of an herbaceous plant is *yung*.

不榮而實者謂之秀. No flowers, but fruits, is called *siu*.

而不實者謂之荚. No seeds, is called *ying*.

Other Chinese authors, who are followed by Williams in his Dictionary, define the character *siu* by grain in seed, which then bends gracefully. Williams translates the character *ying* by a flower whose fruit is not yet formed.

II.—釋木 *Shi mu*.—Explanation of Names of Trees.

223.—楰 *T'ao*; 山榎 *Shan kia* (mountain *kia*).

Kuo P'o:—Now the same as the 山楸 *Shan ts'iu* (mountain *ts'iu* or *Catalpa*). [*V. infra*, 508.]

Comp. also 290-292, where *kia* and *ts'iu* are stated to be varieties of the 槐 *huai* tree (*Sophora*). [See also 511.]

224.—栲 *K'ao*; 山樗 *Ch'u* (mountain *ch'u*).

Kuo P'o:—The *k'ao* resembles the *ch'u*. It is of a whitish colour, grows in the mountains, whence the name. It is a kind of 漆 *ts'i* or varnish tree.

Hing Ping:—Popular names 櫄栲 *ch'un k'ao*, 栲漆 *k'ao ts'i*. *Shi king* quoted. [*V. infra*, 519.]

The *ch'u* is *Ailantus glandulosa*; the *k'ao* or *shan ch'u* may be a *Rhus*.

V. infra, 288.

225.—柏 *Po*; 椈 *Kū*.

[*V. infra*, 505, *Thuja*].

226.—椵 *Kia*; 柂 *I*.

Kuo P'o:—This is the 白椵 *Pai kia*; it resembles the 白楊 *Pai yang* (white poplar).

Hing Ping:—Its wood is moist.

In some editions of the *Rh ya*, and also in *K.D.*, the first character is written 椴 *tuan*. This at Peking is a name for the Lime tree, *Tilia*, not mentioned in *P.* [Comp. also above 6.]

The 椵 *kia* tree is likewise not described in *P.*, but a rough figure of it, which is not sufficient for its recognition, is given in the *Kiu huang*, LIV, 36, and reproduced in

Ch., XXXIV, 21. The *kia* tree is mentioned by T'AO HUNG-KING [5th century] who in his note regarding Ginseng quotes a Corean poem in praise of the Ginseng, saying that the *kia* tree and the Ginseng have mutual sympathy. T'AO adds that the *kia* is a tree resembling the 桐 *t'ung* (*Paulownia*), growing very high and giving an extensive shade. [See *P.*, XII*a*, 11, article 人參 *Jen shen*]. Reference is made to the *kia* tree in GROSIER'S *La Chine*, II, 289. It is described in *K.K.F.P.*, LXXXI, 19, as a tree with large leaves collected together like a fan, the bark of which furnishes textile fibres fit for making fishing nets. The *Cheng te fu chi* reports the same with regard to the *tuan* tree or *tilia*. It seems that authors frequently confound the characters *kia* and *tuan*.

The above character 梓 *I* is also written 椅 and also read *T'o*. [See *W.D.*, 911.]

227.—梅 *Mei*; 柟 *Nan*.

KUO P'O :—It resembles the 杏 *hing* (Apricot); is an acid fruit.

HING PING :—SUN YEN says :—In 荆州 King chou (Hupei) they call it *mei*, whilst in 揚州 Yang chou (Anhui, Chekiang) they say *nan*. It is mentioned in the *Shi king*.

[*V. infra*, 473, ***Prunus Mume***.]

The above character *nan* is often confounded with 楠 *nan*, ***Laurus nan mu***. [*V. infra*, 512.]

E., 205, family 梅, with two figures, one a *Prunus*, the other *Chimonantes fragrans*. 18 names are given, among them those *infra*, 237 and 244.

S., XI, 7. *Sm.*, 174. *C.*, 835. *P.*, XXIX, 11.

A., XV, 149, *Prunus domestica*, L., commonly termed 李.

E., 259, family 楠, with figure, probably of *Persea*, has also the names *mei* [*Shi*] and *nan* [*Rh ya*].

228.—柀 *Pi*; 杉 *Shan* (*sha*).

Kuo P'o:—The second character to be pronounced 杉 *shan* (*sha*). It denotes a tree which resembles the 松 *sung* (*Pinus*) and grows in Kiangnan. Its wood is fit for ship-building, coffins, pillars; it is veined, does not decay.

P., XXXIV, 12, 杉 *shan* (*sha*). This character, another form of the *shan* in the *Rh ya*, is first met with in the *Pie lu* [5th century]. The name is also written 沙木 *sha mu*. The ancient authors say that this is a large tree yielding excellent timber and resin; leaves like needles, sharp pointed, but flattened, evergreen. It is common in Middle China. Li Shi-chen states that there are several kinds of the *shan* tree, one of them introduced from Japan. One kind has a red wood and is very tough and resinous; the white *shan* is of a looser structure, and when dry becomes beautifully veined.

The *shan* tree of the ancient Chinese authors is without doubt the *Cunninghamia sinensis*, R. Brown, a common and very valuable coniferous tree of Middle and Southern China. Comp. Mr. Th. Sampson's interesting note regarding this tree in *Notes and Queries on China and Japan*, 1868, p. 52. But it seems that nowadays the name *shan* in China is applied also to *Cryptomeria japonica*, Don., and perhaps to other coniferous trees. Dr. Henry informs me that *Cryptomeria japonica* in Hupei, where it occurs wild, is one of the numerous 杉 *sha* trees of the Chinese.

In Japan, where *Cunninghamia sinensis* occurs only cultivated, the Chinese character 杉 denotes *Cryptomeria japonica*. See *Phon zo*, LXXIX, 19, 20; Sieb. & Zucc., *Flora japon.*, I, 43, tab. 124; Siebold, *Syn. plant. œcon. jap.*, 65.

In *Ch.*, XXXIII, 58, the coniferous tree represented under 杉 is neither *Cryptomeria* nor *Cunninghamia*. A good drawing of the latter is found there, fol. 60, *s.n.*, 沙木 *sha mu*.

E., 235, family 榧, with figure of *Torreya nucifera*, S. & Z., also called 野杉.

S., XI, 35; *P.*, XXXI, 10; *Sm.*, 220; *C.*, 297; *Jap.*, 2213.

E., 261, family 杉, the same two terms are quoted from the *Rh ya.*

S., VIII, 23, with bad figures of two distinct trees.

229.—櫰 *Fei*; 椵 *Kia* [*see* 226].

Kuo P'o:—A kind of 柚 *Yu* (*Pumelo*, *Citrus decumana*, *see* 236). Fruit as large as a bowl; the rind from two to three inches thick; the flesh inside is like that of the 枳 *Chi* (*Citrus trifoliata*), of little flavour.

[*V. infra*, 487.]

E., 230, family 柚, and *E.*, 254, family 枳, no names from the *Rh ya.* [*V. infra*, 236.]

230.—杻 *Niu*; 檍 *I.*

Kuo P'o:—It resembles the 棣 *Ti* [*v. infra*, 306, a plum tree]. Small leaves, when young fit for feeding cattle. Of its wood tires of wheels are made. In Kuan si they call it *niu tsz'* also 土橿 *t'u kiang.* [Regarding *kiang*, *see* 536.]

[*V. infra*, 544, *Ligustrum ?*]

E., 272, family 杻, without figure.

231.—栩 *Mou*; 木瓜 *Mu kua.*

Kuo P'o:—This fruit is of the size of a little melon, edible, of a sour taste.

[*V. infra*, 478, Quince, *Cydonia sinensis.*]

E., 280, family 木瓜, with a good figure.

S., XII, 24. *Sm.*, 181. *C.*, 866.

H., 295, *Pyrus Cathayensis*, Hemsl.

Jap., 1827, *Pyrus japonica*, Thbg., *Var. genuina*, Max.

1825, *Pyrus Cydonia*, L., is 榲桲. [*V. infra*, 480.]

232.—椋 *Liang*; 即来 *Tsi lai.*

Kuo P'o:—The wood of the *liang* is fit for making tires of wheels.

Hing Ping:—The *T'ang Pen ts'ao* says:—The leaves of this tree resemble those of the 柿 *shi* (*Diospyros*), they grow two

together opposite; fruit small, globular like the 牛李子 *niu li tsz'* (*Prunus*), at first green, when ripe black. The wood is hard, the sap of it, when cooked, becomes red.

P., XXXV*b*, 20, 松楊 *sung yang* (pine poplar) or 椋子木 *Liang tsz' mu*. The first name is explained by the timber resembling that of the pine, the trunk that of the poplar. CH'EN TS'ANG K'I [8th century] says that the tree grows in Kiangnan. The figure given of the *liang tsz' mu* in the *Kiu huang*, LIV. 9, is worthless, only leaves figured; it is said there to grow in the mountains of Mi hien in Honan. The drawing representing the same tree, in *Ch.*, XXXV, 14, shows a tree with small, globular fruit. See also *W.D.*, 499, 棶 *lai*, and 525 *liang*.

The *Phon ts'o*, LXXXIV, 24, 25, figures under 松楊 or 棶椋, a tree not identified by FRANCHET, but Dr. GEERTS' *Japanese Woods* gives 椋 and 糙葉樹 (tree with rough leaves) as the Chinese names for *Aphananthe aspera*, Planch. *Ulmaceæ* (*Homoioceltis aspera*, Bl. *Prunus aspera*, Thbg.) This is also the *Celtis muku* of SIEBOLD, *Syn. plant œcon. jap.*, 168: Folia ad lævigandum lignum. Fructus edules.

This may also be the tree figured in *Ch.*

E., 272, family 椋, with figure of a tall tree.

Jap., 838, *Ehretia serrata*, Roxb., 松楊, which name is a synonym.

233.—栵 *Lie*; 栗 *Rh.*

KUO P'O:—A tree resembling the 槲樕 *hu su* (an oak, *v.* 535) but of smaller size. Fruit like a small chestnut, edible. Now in Kiang tung the people call it 栗栗 *rh li*, (*rh* chestnuts).

[*V. infra*, 495, small chestnuts.]

234.—髡棶. Unknown to the Chinese commentators.

235.—穫 *Huo*; 落 *Lo*.

Kuo P'o :—Cups can be made of the wood, which is white and hard grained.

Hing Ping :—某氏 says it is fit for making cups. The bark is soft and tough ; it is good for wrapping up things.

[*V. infra*, 553, *Betula*.]

E., 252, family 樸, without figure.

236.—柚 *Yu* ; 條 *T'iao*. *See also* 229.

Kuo P'o :—It resembles the 橙 *ch'eng* (coolie orange). It has a sour taste ; is produced in Kiangnan. [The *Shuo wen* also says that it resembles the *ch'eng*.]

Hing Ping :—It is mentioned in the *Yü kung* of the *Shu king*, also in the *Lü shi ch'un ts'iu* [3rd century B.C.] The *T'ang Pen ts'ao* says the *yu* fruit has a thick peel of a sweet taste, whilst the peel of the *kü* or common orange is bitter. Its flesh resembles that of the orange. There are sweet and acid varieties of the *yu*. The acid *yu* is called 胡甘 *hu kan* The *ch'eng* is not, as some people say, the same as the *yu*.

[*V. infra*, 487, Pumelo, *Citrus decumana*.]

237.—時 *Shi* ; 英梅 *Ying mei*.

Kuo P'o :—Same as the 雀梅 *tsio mei* (sparrow plum).

Hing Ping :—It is smaller than the *mei* (*Prunus mume*). According to *P.*, XXXVI, 33, this is the same as the 郁李 *yü li* or *Prunus japonica*. [*V. infra*, 474.]

238.—援 *Yüan* (*hüan*) ; 杞梫 *Kü k'iung*.

Kuo P'o.—The character *k'iung* is unknown, but it is believed that it stands for 柳 *liu* (willow). The *kü k'iung* resembles the willow. Of the bark, by boiling it, a beverage is made.

The *Shuo wen* explains the character 梫 by 櫰椐木 unknown to me ; the first character is a palm, *chamerops*.

In *P.*, XXXV*b*, 20, the above names in the *Rh ya* are identified with the 櫸 *kü*, a name which first appears in the *Pie lu* [5th century]. Confused description of the tree, which is also called 櫸柳 *kü liu*. Li Shi-chen says it furnishes a dark red timber, good for making boxes. The *T'ung chi* [12th century] states that this tree is a sort of 榆 *yü* (elm); its seed-vessels resemble those of the elm, having the shape of small coins. The country people gather the leaves of this tree and use them as tea.

The *kü* tree figured in *Ch.*, XXXIII, 63, is, according to Henry, *l.c.*, 247, *Pterocarya stenoptera*; it seems to me that the figure represents rather a *Rhus*.

Siebold, *Syn. plant. œcon. jap.*, 170, 櫸 *Ulmus keaki* or *Zelkowa keaki*, Sieb., *Planera japonica*, Miq. This tree is figured under the above Chinese name in *Phon zo*, LXXXIV, 9, 10. It is also found in China. Forbes gathered it near the Tahu Lake (*Journ. Bot.*, 1876, 209.)

Comp. also Grosier, *La Chine*, II, 356. The *kü liu* is mentioned as a tree of Manchuria in the Emperor K'ien Lung's poem in praise of Mukden.

E., 263, family 柳, with good figure of a *Salix*.

樓 [*v. infra*, 527] is also given as a synonym.

Jap., 2396, *Zelkowa keaki*, S., 櫸. The figure to *P.*, XXXV, 20, agrees with *Zelk*.

Comp. *Sm.*, 232, Large Willow.

239.—栩 *Hü*; 杼 *Chu*.

Kuo P'o:—Same as the 柞 *tso* tree (*Quercus*).

[*V. infra*, 534, *Quercus*.]

E., 236, family 橡, with figure of a *Quercus*.

240.—味 *Wei*; 荎蕍 *Ch'i ch'u*.

Kuo P'o:—Refers to 149, *Schizandra*.

241.—藨 *Ou*; 荎 *Tie* (*ch'i*).

Kuo P'o:—It is now called 刺榆 *ts'z' yü* (thorny elm).

[*V. infra*, 530, *Hemiptelea*.]

Synonyms to *infra*, 263.

242.—杜 *Tu*; 甘棠 *Kan t'ang* (sweet *t'ang*).

Kuo P'o:—Now called 杜梨 *tu li*.

Hing Ping:—舍人 She jen says the *tu* of a red colour is called 赤棠 *ch'i t'ang* or *kan t'ang*, the white one is simply *t'ang* [see 254]. *Shi king* quoted.

[*V. infra*, 482. *Pyrus.*]

243.—狄臧棹貢棊. Unknown to the Chinese commentators.

244.—杕 *K'iu*; 檕梅 *Ki (hi) mei.*

Kuo P'o:—The *k'iu* tree has the appearance of the *mei* (plum). Its fruit is of the size of the end of a finger, of a red colour, resembling a small 榛 *tsi* fruit [*c.* 286]; edible.

Li Shi-chen in *P.*, XXX, 12, identifies this with the 山楂 *shan cha* or 山裡紅 *shan li hung*. It is described as a small, thorny tree with five lobed leaves and red, occasionally yellow, fruit resembling the 林檎 *lin kin* (crab-apple). It is edible.

The above names are applied in China to several species of *Crataegus* or hawthorn. The *shan li hung* of Peking is the red fruit of *Crataegus pinnatifida*, Bge., collected in the mountains and made into an excellent sweetmeat. *See* the drawings in the *Kiu huang*, LV, 8, and *Ch.*, XXXII, 39. According to Henry, *l. c.*, 411, in Hupei *Cr. pinnatifida* is called *shan cha*.

In the *Phon ts'ao*, LXIII, 16, 山楂 is *Crataegus cuneata*, S. & Z., and 羊杕子 *Cr. pinnatifida*.

E., 284, family 山楂, with good figure of *Crataegus*.
C., 1082. *Sm.*, 77. *A.*, XV, 150.
Jap., 693, *Cr. cuneata*, S. & Z.

K'iu is also a synonym of 楊梅 *E.*, 278, (*Myrica rubra*, S. & Z., *Jap.*, 1468), and of 梅 (*Prunus*) *E.*, 205, where *hi mei* also occurs among the 18 names given.

245.—枓者聊. Unknown to the Chinese commentators.

246.—魄 *P'o*; 榽檻 *Hi k'o*.

Kuo P'o:—The *p'o* is a large tree with small leaves, and resembles the 檀 *t'an* [*Cæsalpinia* or *Dalbergia*, *v. infra*, 540]. It is frequently seen in Kiang tung.

E., 310, family 擊迷, the figure resembles *Aucuba*.

Jap., 309, *Aucuba japonica*, Thbg., is called 桃葉珊瑚.

247.—梫 *Ts'in* (*shen*); 木桂 *Mu kui*.

Kuo P'o:—The southern people call it 桂 *kui*. That sort with a thick bark is called *mu kui* (ligneous *kui*). The leaves of the *kui* tree resemble those of the 枇杷 *pi pa* (*Eriobotrya japonica*), but are larger. White flowers. The tree is an evergreen and grows in the mountains.

Hing Ping:—In the *Pen ts'ao* it is called 牡桂 *mou kui* (male *kui*).

[*V. infra*, 552, Cassia bark, *Cinnamomum Cassia*, Bl.]

E., 241, family 桂, with figure and 10 names.

248.—棆 *Lun*; 無疵 *Wu ts'z'*.

Kuo P'o:—A kind of 楩 *p'ien*. It resembles the 豫章 *yü chang* (*Laurus camphora*).

Hing Ping:—The *lun* yields an excellent timber. The *p'ien* and the *yü chang* are large trees in the south.

In the *Pen ts'ao*, XXXIV, 39, the *lun* as well as the *p'ien* are given as synonyms for 釣樟 *tiao chang*, which is a *Lindera* (*Laurineæ*) [see *infra*, 513]. The *p'ien* is mentioned in one of Sz' ma siang ju's poems [2nd century B.C.] *v. infra*, 514.

E., 259, family 棆, without figure.

249.—椐 *Kü*; 樻 *Wei* (*k'ui*).

Kuo P'o:—It has swollen joints, is fit for canes, staves, etc. [*V. infra*, 554.]

E., 251, family 椐, without figure.

250.—楨 *Ch'eng*; 河柳 *Ho liu* (river willow).

Kuo P'o:—A small 楊 *yang* (poplar or willow) tree with a red stem. It grows on the borders of rivers.

[*V. infra*, 527, *Tamarix*.]

Kung Ying-ta attributes the explanation given by Kuo P'o to 某氏. *Tamarix* does not resemble a poplar or a willow, but it is true that the bark of its branches is of a brown red colour. [See the drawing in Sieb. & Zucc., *Flora japon.*, I., tab. 71.]

V. supra, 238; and 251.

251.—旄 *Mao*; 澤柳 *Tse liu* (marsh willow). [Comp. *infra*, 267.]

Kuo P'o:—It grows in marshes.

252.—楊 *Yang*; 蒲柳 *P'u liu* (reed-mace willow).

Kuo P'o:—It is good for making arrows. The *Tso ch'uan* calls it 董澤之蒲. [*V. infra*, 525, willow.]

E., 268, family 楊, with three figures, the first 白楊 of a *populus*. *Jap.*, 1737, *Populus suaveolens*, Fisch. *H.*, 54c. *Sm.*, 231, 232.

253.—權黃英輔小木. Unknown to the Chinese commentators.

254.—杜 *Tu*; 赤棠 *Ch'i t'ang* (red *t'ang*).

白者棠. The white kind is (simply) called *t'ang*. [Comp. 242.]

[*V. infra*, 482, *Pyrus*.]

E., 233, family 棠梨, with figure of a *pyrus*.

255.—諸慮 *Chu lü*; 山棗 *Shan lei*.

Kuo P'o:—Now in Kiang tung *lei* has the same meaning as 藤 *Teng* (a general name for woody climbing plants, *lianes*). It resembles the 萵 *ko* (*Pachyrhizus*) but is coarser and larger (longer).

The *lei* is also mentioned in the *Shan hai king*. The character is there written 纍. Kuo P'o explains it by *teng*, and adds that it is a kind of 虎豆 *hu tou* [see the next] or 狸豆 *li tou*.

P., XXIV, 25, 黎豆 *li tou* or 虎豆 *hu tou*, a cultivated leguminous plant. Drawing, *Ch.*, I, 36. The 黎豆 in Japan is *Mucuna capitata*, Wight. See *So moku*, XIII, 24. But this does not agree with the drawing in *Ch.*

E., 112, family 藤, with fourteen figures and 70 names.

E., 37, 6, family 豆, sub-family 黎豆, with figure probably of *Mucuna*. *Jap.*, 1462, *M. capitata*, Wight.

The figure to *P.*, XXIV, 25, differs.

256.—攝 *She* (*che*); 虎纍 *Hu lei*.

Kuo P'o:—It is now called 虎豆 *hu tou* (tiger's bean). It climbs on trees; its pods are covered with hairs and prickles. In Kiang tung they call it 欖攝 *la she*.

Hing Ping:—It is a kind of 葛 *ko* (*Pachyrhizus*). Large leaves. The seeds resemble those of the 菉豆 *lü tou* (*Phaseolus Mungo*).

In *P.*, *l. c.*, this is likewise identified with the *li tou* [*v.* 255].

E., 37, 6, a synonym. [*V. supra*, 255.]

257.—杞 *K'i*; 枸欖 *Kou ki*.

Kuo P'o:—It is now called 枸杞 *kou k'i*.

[*V. infra*, 526, *Lycium*.]

258.—杬 *Yüan*; 魚毒 *Yü tu* (fish poison).

Kuo P'o:—*Yüan* is the name applied to the fruit (or the seeds) of a large tree (大木子 *ta mu tsz'*; perhaps this is the name of the tree). It resembles the chestnut, grows in the southern countries. The bark (peel) is thick, contains a red juice which is used to preserve eggs and fruit.

The *yüan* tree is mentioned in the *Wu tu fu* [3rd century, see *Botan, sin.*, I, 656]. 李善 Li Shan [7th century] who

comments upon this panegyric of the Wu capital, says :—the *yüan* is a great tree ; its bark is thick, bitter and harsh ; they strip it off and dry it ; it is of a red colour ; a decoction of it is good for preserving fruit from spoiling. This tree grows in 豫章 Yü chang (Kiangsi). Comp. *K.D.* and *W.D.*, 1135.

In the *Shuo wen*, the name *yi tu* (fish poison) is applied to the 芫 *yüan*, a *Daphne* [*v. infra*, 465]. But that is not a large tree.

259.—櫰 *Hui* ; 大椒 *Ta tsiao*.

Kuo P'o :—This is the 椒 *tsiao* tree. That kind with large fruits is called *hui*.

V. infra, 497, *Zanthoxylon*, Chinese pepper. This is represented in the figure of the *Rh ya*.

260.—栩 *Yü* ; 鼠梓 *Shu tsz'* (rat's *Catalpa*).

Kuo P'o :—It is a kind of 楸 *ts'iu* (*Catalpa*). In Kiang tung there is a tree called 虎梓 *hu tsz'*.

[*V. infra*, 510.]

261.—楓 *Feng* ; 欇欇 *Che che*.

Kuo P'o :—The *feng* tree resembles the 白楊 *pai yang* (white poplar). Leaves round and pronged. It contains a fragrant resin 楓香 *feng hiang*.

Hing Ping :—The *Shuo wen* says :—The *feng* tree has thick leaves and pliable branches, which make it wave elegantly. The *T'ang Pen ts'ao* says :—The *feng* is a tall tree ; large three-furcated leaves. It grows abundantly in 商洛 Shang and Lo (Southern Shensi).

P., XXXIV, 43 ; *Ch.*, XXXV, 1. The *feng* is the *Liquidambar formosana*, Hce., a common tree in Middle and Southern China. *See* Mr. Th. Sampson's interesting account of the *feng* tree in *Notes and Queries on China and Japan*, 1869, 4, 31. Henry, *l. c.*, 102, states that at Hankow tea-chests are made from the wood of it.

E., 260, family 楓, with bad figure, a copy of *S.*, IX, 14.

Pr., 172. *Sm.*, 171, 205. *Jap.*, 1302, *Liquidambar Maximowiczii*, Miq.

C., 312, 1481, *Acer trifidum*, Hk. & Arn. *Jap.*, 36, 三角楓.

E., 260, has also the Indian name *Sardjarasa* among its synonyms.

262.—寓木 *Yü mu* (dwelling on trees); 宛童 *Wan t'ung*.

Kuo P'o:—The 寄生樹 *ki sheng shu* (plant which dwells on trees), also called 蔦 *niao*.

[*V. infra*, 449, Mistletoe, *Viscum*.]

263.—無姑 *Wu ku*; 其實夷 its fruit is called *i*.

Kuo P'o:—*Wu ku* is the same as 姑榆 *ku yü*. It grows in the mountains, leaves round and thick. The people strip off the bark and steep it; it is of an acrid taste and fragrant. This is called 無夷 *wu i*.

Hing Ping:—The *Pen ts'ao* has the names *wu i* and *wu ku*.

P. XXXV*b*, 33, 蕪荑 *wu i*. It is supposed there that the names in the *Rh ya*, 57 and 263, refer to the same plant, but 57 is an herbaceous plant (*Blitum*) and 263 a tree. The *Shuo wen* states that the 梗 *keng* tree is the same as the 山枌榆 *shan fen yü* (mountain elm, *see* 304), it has thorns, its fruit is called *wu i*. Li Shi-chen writes 梗, but that is a different tree (*see* 248, 514). He states also that of the *wu i* there are two kinds; one is large, the other smaller. The latter is the same as 榆莢 *yü kia* (seed-vessels of the elm tree).

E., 269, family 榆, figure probably of an *Ulmus*.

The figure to *S.*, IX, 6, is bad, but may be meant for an *Ulmus*.

C., 1554.

Jap., 2256, *Ulmus campestris*, Sm., 楡.

Jap., 2258, *Ulmus parvifolia*, Jacq., 椵楡

264.—櫟 *Li*; 其實梂 its fruit is called *k'iu*.

Kuo P'o:—有梂彙自裹. This phrase, unintelligible to me, refers perhaps to the subulate scales of the cupule of the acorn, likened to a hedgehog.

HING PING :—*Kʻin* means the cupule of the fruit. SUN YEN says that the fruit of the *li* tree is called 橡 *siang*.

[*V. infra*, 534, *Quercus*.]

265.—檖 *Sui*; 羅 *Lo*.

KUO PʻO :—It is now called 楊檖 *yang sui*. The fruit resembles a pear, but is smaller, of a sour taste, edible.

[*V. infra*, 483.]

Synonyms, *infra*, 301.

266.—楔 *Kia*; 荊桃 *King tʻao*.

KUO PʻO :—It is now called 櫻桃 *ying tʻao*.

HING PING :—The *Kuang ya* has 含桃 *han tʻao*.

[*V. infra*, 477, Cherry.]

267.—旄 *Mao* [Comp. 251]; 冬桃 *Tung tʻao* (winter peach)

KUO PʻO :—The fruit ripens in winter.

E., 215, family 桃, with a good figure of *Prunus persica*.

The names of 267 and 268 are synonyms [*v. infra*, 470].

268.—榹桃 *Szʻ tʻao*; 山桃 *Shan tʻao* (mountain peach).

KUO PʻO :—The fruit is like the peach but smaller. The flesh adheres to the stone.

Perhaps *Persica Davidiana*, Carr., of the Peking mountains, which the Chinese call *shan tʻao*. Fruit small, not edible.

269.—休 *Hiu*; 無實李 *Wu shi li* (a plum tree which bears no fruit).

KUO PʻO :—Another name is 趙李 *chao li*.

E., 220, family 李, with figure of a *Prunus*. *Jap.*, 1787, *Pr. triflora*, Roxb.

The names of 269, 270, 271 are all synonyms.

270.—痤 *Tso*; 接慮李 *Tsie lü li*.

KUO PʻO :—It is now called 麥李 *mai li* (wheat plum).

HING PING :—Called wheat plum because the fruit ripens at the same time as wheat does.

271.—駁 *Po*; 赤李 *Ch'i li* (red plum).

Kuo P'o:—A plum of a red colour.

272.—棗 *Ts'ao*; 壺棗 *Hu tsao* (pot jujube).

Kuo P'o:—Now in Kiang tung the large jujube, pointed at the head, is called 壺 *hu* (pot) or 瓠 *hu* (calabash).

Hing Ping explains:—It has the shape of a pot.

This and the following names to 282, refer to varieties of the Jujube, *Zizyphus vulgaris*, Lam. [*V. infra*, 484.]

E., 223, family 棗, with two figures of *Zizyphus vulgaris* and of a thorny variety.

All the names from 272 to 282 and 5 more are synonyms.

S., XI, 17; *C.*, 1334, 1336, 1337. *Sm.*, 44, 83, 87, 115, 125. *H.* 497.

273.—邊 *Pien*; 要棗 *Yao tsao*.

Kuo P'o:—The fruit has a slender waist (子細腰). It is now called 鹿盧棗 *lu lu tsao*. The drawing represents a fruit contracted in the middle like the bottle-gourd.

274.—櫅 *Tsi*; 白棗 *Pai tsao* (white jujube).

Kuo P'o:—This is what is now called 棗子白熟 (white ripe jujube).

275.—楖 *Rh*; 酸棗 *Suan tsao* (sour jujube).

Kuo P'o:—A small tree with sour fruits, mentioned by Meng tsz' (Mencius). This is a spinous variety of *Zizyphus vulgaris*. [*V. infra*, 484.]

276.—楊徹齊棗. Unknown to the Chinese commentators.

277.—遵 *Tsun*; 羊棗 *Yang tsao* (sheep's jujube).

Kuo P'o:—Small globular fruit of a dark purple (brown) colour. Now the people call it 羊矢棗 *yang shi tsao* (sheep's dirt jujube).

[*V. infra*, 484.]

278.—洗 *Sien*; 大棗 *Ta tsao* (great jujube).

Kuo P'o :—There is now in Ho tung, in 猗氏縣 I shi hien (South-Western Shansi) a kind of *tsao* of the size of a hen's egg.

P., XXIX, 32, 大棗 mentioned in the *Pie lu*. This is probably the large jujube, now produced chiefly in Shantung, which the Chinese preserve with honey or sugar, and which is sold at Peking under the name of 蜜棗 *mi tsao* (honey jujube). It much resembles in appearance the date. [See also *infra*, 484.]

279.—煮塡棗. Unknown to the Chinese commentators.

280.—蹶洩 *Küe sie*; 苦棗 *K'u tsao* (bitter jujube).

Kuo P'o :—Fruit of a bitter taste.

P., XXIX, 36, 苦棗. Ch'en Shi-liang [10th century] says that this is a small green jujube of a bitter taste, very common, but not much eaten by the people.

281.—晢 *Si*; 無實棗 *Wu shi tsao* (a jujube tree without fruit).

Kuo P'o :—This variety does not produce fruit.

282.—還味 *Süan (huan) wei*; 梫棗 *Jen tsao*.

Kuo P'o :—It is of a bitter, unpleasant taste.

283.—櫬 *Ch'en*; 梧 *Wu*.

Kuo P'o :—It is now called 梧桐 *wu t'ung*. [See also *infra*, 309.]

[*P.* *infra*, 516, *Sterculia platanifolia*.]

E., 237, family 桐, with good figure of *Sterculia platanifolia*. *Yung* [*v. infra*, 309] is one of the synonyms.

E., 295, family 木槿 [*v. supra*, 6] gives *ch'en* as a synonym of *Hibiscus*.

284.—樸 *Pu* (*p'o*); 枹者 *Fu* (*pao*) *che*. [Comp. also 308.]

Kuo P'o:—枹 means to grow thickly. [V. *infra*, 531, *Celtis?*] In the *Names of Japanese Timber Trees*, Home Department, 枹 is *Quercus crispula*.

Jap., 1839, *Quercus glandulifera*, Bl., 枹.

285.—謂槐 *Wei ch'en*; 采薪 *Ts'ai sin*; 采薪郎薪.

Kuo P'o explains these terms by 樵薪 faggots, fuel, to gather fuel.

286.—棯 *Yen*; 櫧其 *Su ki*.

Kuo P'o:—The fruit of the *yen* resembles that of the 柰 *nai*, is of a red colour and edible.

Kuo P'o, in explaining the name *yen*, applied to a tree in the *Shan hai king*, says:—It is also called 連 *lien* [perhaps a mistake for *su*, *c. supra*]; its fruit resembles that of the *nai*, is red and edible.

I cannot say what the *yen* tree was. As to the *nai*, it is also written 榛 [*c.* 244], this name is still in use and applied to a fruit which seems to be common in Middle China. WILLIAMS, *Dict.*, 613, calls it a kind of bullace or large yellow plum, sour yet edible. The character *nai* is found in the *Shuo wen* and explained there: name of a fruit.

P., XXX, 15, has an account of the *nai*. It is mentioned in the *Pie lu*. T'AO HUNG-KING says:—This fruit is found in Kiangnan, but it is more plentiful in the Northern States, where the fruit is dried for food. It is, however, not profitable to man. It resembles the 林檎 *lin k'in* [crab apple, *c.* 301] but is smaller. LI SHI-CHEN also says that the *nai* resembles the crab apple, but is larger. There are red, white and green varieties. It is grown especially in the Western Provinces. LI SHI-CHEN states farther that the Sanscrit name for the *nai* is 頻婆 *p'in p'o*, which latter name has also been adopted

in the Northern Provinces. According to STAN. JULIEN (*Méthode pour dé-hiffrer les noms sanscrits des livres chinois*, p. 171) *pin p'o* is an equivalent of *vimbam*, which has been identified with *Bryonia grandis*, a cucurbitaceous plant. Dr. EITEL, however, in his *Handbook of Chinese Buddhism*, gives 柰 as the Chinese equivalent for *mallika* or *Jasminum*.

Ch., XXXII, 35, writes 柰 *nai* or 類果 *pin kuo*, and figures, it seems, a large apple. *Pin kuo* in North China is the common name for apple. Many years ago the late French bishop Mgr. DELAPLACE told me that in the Province of Chekiang the *nai* is a common fruit, and that it is neither a plum nor an apple, but a fruit peculiar by itself. In Japan this character is applied to the quince. *Amœn. exot.*, 800, 柰, *dai*, Malus cotonea, fructu mediocri, rotundo, compresso, vulga *kara nas* (*i.e.*, *Pyrus sinica*). Comp. also *Phon zo*, LXIV, 2, 柰; drawing not identified.

E., 221, family 柰, with good figure of *Pyrus Malus*, L. The names of the *Rh ya* not found.

The figures to *S.*, XI, 32, and *P.*, XXX, 15, and *Sm.*, 174, agree. *Sm.*, 127, *Kæmpferia, Alpinia*, etc.?

The Sanskrit name *p'in p'o* is mentioned as a synonym.

E., 285, family 林檎, with figure of a *Citrus*, and 花紅 among the synonyms.

Jap., 1829, *Pyrus Malus*, L., 林檎.

E., 123, family 茉莉, with figure of *Jasminum*, has 柰花 as a synonym.

287.—劉 *Liu*; 劉杙 *Liu i*.

KUO P'O:—A mountain tree. The fruit resembles a pear, is acid and sweet, the stone is hard. This fruit is brought from 交趾 Kiao chi (Cochin-China).

K.K.F.P., LXVII, 20:—The *liu* tree is mentioned in the *Nan fang ts'ao mu chuang* [3rd century]. It produces a fruit as large as a plum and of an acid taste; but preserved with honey it tastes well. The *King yang I wu chi* [*Botan. sin.*, No. 337] says that the *liu tsz'* is a tree growing in the

mountains of 交廣 Kiao kuang, 武平 Wu p'ing and 興古 Hing ku (all in Southern China); it flowers in the third month; the fruit, which resembles a plum, ripens in the eighth month and then becomes yellow; it is of an acid and sweet taste, has a hard stone.

288.—櫰 *Wai* (*huai*); 槐大葉而黑 *Huai*, tree with large leaves and black.

Kuo P'o:—A variety of the 槐 *huai* tree with large black leaves is called *wai* (*huai*).

The 槐 *huai* is *Sophora japonica*, L. [*Cf. infra*, 546]. The *wai* is noticed in the *Shan hai king* as a tree with red fruit as large as a quince, which is eaten and considered strengthening.

P., XXXIV, 42, 櫰香 *huai hiang*, also 兜婁婆香 *tou lou p'o hiang*. Li Shi-chen says:—A small tree, growing in the mountains of Middle China and used for fuel. Long, pinnate, green fragrant leaves, serrated, not unlike thistle leaves. The root resembles that of the *kou ki* (*Lycium*) but is larger; very fragrant when burnt. *Ch.*, XXXIV, 10, the former names, also 槐香葉 *huai hiang ye* (*huai* with fragrant leaves). Rough drawing, taken from the *Kin huang*, LIV, 22. Tree with pinnate leaves. Also *Ch.*, XXXVIII, 3, 花香樹 *hua hiang shu*. Henry, *l. c.*, 131, says that this is the *Platycaria strobilacea*, S. & Z., in Hupei. This tree was first described and figured by Lindley in the *Journ. Hort. Soc.*, I, (1846) p. 150, under the name of *Fortunea sinensis*. It had been brought by R. Fortune from Chusan and Ningpo. *See* Sieb. & Zucc., *Flora japon.*, II, 87, tab. 149. *Phon zo*, LXXXI, 14, 15, 櫰香 *Platycaria strobilacea*.

E., 255, family 槐, with figure of *Sophora* and the names from the *Rh ya*.

E., 148, family 藿, with figure of a plant without flowers or fruit, has *Tou lou p'o hiang* as a synonym. *Jap.*, 1657, *Platycarya*

strobilacea, **化香樹**. For this tree I received the name **栲** [*v. infra*, 519] from Ningpo, which is a synonym of *E.*, 253, family **櫧** [*v. infra*, 518]. It is also a synonym of *E.*, 253, family **椿** [*v. infra*, 520]. The figures to both families are exactly the same. The names seem to be used for various tall trees with pinnate leaves. [Comp., *supra*, 224.]

289.—**守宮槐** *Shou kung hwai* (*hwai* warden of the palace). **葉晝聶宵炕**. As Kuo P'o explains, this means that the leaves of the tree fold together in the day-time and expand at night.

It is not clear whether *Sophora japonica* is meant or another tree. I am not aware of a tree whose leaves fold together in the day and expand at night. Comp. *infra*, 546, regarding the *hwai* tree in the audience court of the Chou dynasty.

290.—**槐小葉曰　　榎** *Kia*.

Kuo P'o explains:—**槐** *hwai* is the same as **楸** *ts'iu*. A *ts'iu* tree with small leaves is called **榎** *kia* [*see above*, 223].

E., 240, family **楸**, figure may mean *Rottlera* (*Mallotus*); about 10 species occur in China. Other names are **條** [*Shi king*], **楸** [*supra*, 223], **榎** [*infra*, 292], *Jap.*, 1926, *Rottlera japonica*, S. & Z.; *Jap.*, 16, *Acanthopanax ricinifolium*, S. & Z., **刺楸**.

291.—**大而皵　　楸** *ts'iu*.

Kuo P'o:—The old tree with a coarse bark is called *ts'iu*.

292.—**小而皵　　榎** *Kia*.

Kuo P'o:—The small tree with a coarse bark is *kia*. The **榎** is mentioned in the *Tso ch'uan*. (In Legge's edition of the *Tso ch'uan* the character is written **檟** *kia*).

I must avow that the above definitions of the *Rh ya* [290-292] with respect to the names *hwai*, *ts'iu* and *kia*, as well as Kuo P'o's explanations, are unintelligible to me. It would seem that the *ts'iu* and the *kia* are considered to be varieties of the *hwai*. [Comp. also *infra*, 508.] In the

dictionary *Cheng Tsz'-t'ung* it is affirmed that 榎 is the ancient form for 楸. It is not stated whence this fact is derived. The *Shuo wen* says 楸 is the same as 梓. The *K.D.* and *W.D.*, 353, also take the characters 榎 and 楸 to be identical. Only the second is found in the modern editions of the Classics (MENCIUS, *Tso ch'uan*). The *Rh ya*, however, does not mean to identify them, for in 307 楸 *kiu* appears as the name of a tree which has nothing to do with the trees noticed under 290 and 292, but seems to be the tea tree.

E., 240, family 梓, figure of a big tree with large palmate leaves. Other name 木王 the king of trees. *Jap.*, 538, *Catalpa Kæmpferi*, S. & Z. *S.*, VIII, 15.

There is confusion between *Catalpa* and *Rottlera*.

293.—椅 *I*; 梓 *Tsz'*.

KUO P'O :—Same as the 梓 *ts'iu*. [*V. infra*, 508 *Catalpa*].

294.—棖 *I*; 赤棖[8] *Ch'i ts'u* (red *ts'u*).

白者棖 the white *ts'u* is (simply) called *ts'u*.

KUO P'O :—The red *ts'u* has small, forked, pointed leaves; its bark is irregularly broken. It grows in the mountains. Its wood is used for tires of wheels. The white *ts'u* is a large tree with round forked leaves.

[*V. infra*, 545.]

295.—終 *Chung*; 牛棘 *Niu ki*, ox thorn.

KUO P'O :—Same as 馬棘 *ma ki*. It has coarse and long thorns.

The *Shan hai king* mentions a plant 牛傷 *niu shang* which KUO P'O says is the same as *niu ki*.

In *P.*, XVIIIa, 31, the *niu ki* is identified with the 營實 *ying shi* or 薔薇 *ts'iang wei*, described as a very thorny

[8] Some editions of the *Rh ya* have 棘 *su*, *W.D.*, 825. But according to the *K.D.* the correct reading is as above.

shrub which molests man and cattle. Leaves small, serrate; flowers white or pale red with yellow stamens; red fruit which contains hairy seeds like those of the 金櫻子 *kin ying tsz* (*Rosa hystrix*). Flowers and leaves used in medicine.

The *Kin huang*, XLIX, 28, and *Ch.*, XXII, 16, figure under the above names a rose.

Phon zo, XXVII, 2, 薔薇 *Rosa multiflora*, Thbg. This is a common plant in China. [*Jap.*, 1922. 野薔薇.]

E., 271, family 棘, with figure of a large tree, certainly not a *Rosa*. According to description in the text it is a *Zizyphus*, thorny with small fruit. *E.*, 118, family 薔薇, with good figure of *Rosa indica*, L.

296.—灌木 *Kuan mu*; 叢木 *Ts'ung mu*. [Comp. *infra*, 334].

The meaning is, trees with dense foliage.

297.—瘣木 *Hui mu*; 苻婁 *Fu lou*.

Kuo P'o:—Disease in trees which causes woody knobs to form, out of which no branches grow.

298.—蕡 *Fen*; 藹 *Ai*.

Kuo P'o:—A tree producing exuberance of fruit.

299.—枹遒木. 魁瘣

Kuo P'o:—Excrescences on the branches, roots, etc., of trees.

300.—棫 *Yü*; 白棣 *Pai jui*.

Kuo P'o:—The *jui* is a small tree with dense foliage. It is provided with spines. The fruit resembles ear pendants, is of a dark red colour, edible.

[*V. infra*, 534.]

In *P.*, XXXVI, 28, the *yü* or *pai jui* is identified with the 蕤核 *jui ho*. Li Shi-chen says the character 桜 of the *Rh yu* has the same pronunciation as 蕤, and has in later times been substituted for the first. Han Pao-sheng [10th century] describes the *jui ho* as a tree with leaves like those of the *kou ki* (*Lycium*), but smaller and narrower. White flowers. The stem is provided with numerous small spines. The fruits are produced on the stem; they are red and resemble the fruits called *wu wei tsz'* (*Schizandra*). They ripen in the fifth or sixth month, are edible; the people gather and dry them. Another author says it is a small tree, from 5 to 7 feet high, with spines on the stem.

The drawings in the *Kiu huang*, LV, 1, and in *Ch.*, XXXVII, 35, 37, sub *jui ho*, seem to represent a *Berberis*. [See also *Ch.*, XXXIII, 29.]

The drug sold at Peking under the name of 蕤仁 *jui jen* (same as *jui ho*, for *ho* and *jen* both mean kernel) is the small stone of a fruit, probably a *Prunus*.

The 棫 *yü* of the *Shi king* [*c.* 534], however, is an *oak*.

E., 251, family 棫, with figure of a small tree, probably a *Berberis*.

301.—梨 *Li*; 山 樆 *Shan li* (mountain *li*).

Kuo P'o:—The common *li* or pear tree.

Hing Ping:—樆 is the wild pear, 梨 the cultivated tree.

The character *li* for the wild pear is not to be confounded with the similarly looking 檎 *k'in*, which likewise denotes a wild *Pyrus*. We find it always coupled with the character *lin* forest. *P.*, XXX, 16, 林 檎 *lin k'in*. This name appears first, it seems, in the *Si king tsa ki*, compiled about the commencement of our era, and is applied to various wild pears and crab-apples with small, sour fruits. They are said by the ancient authors to grow in the Northern Provinces. *Ch.*, XXXI, 1, represents under this name a *Pyrus* with small fruit. [Comp. also *infra*, 482.]

Amœn. exot., 800, 來禽[9] *Rai kin*, vulgo *Ruko*. Pomus fructu pumilo austero. According to THUNBERG, *Flora japon.*, 207, KÆMPFER'S *Rai kin* is *Pyrus baccata*, L.

Phon zo, LXIV, 3, 林檎 *Pyrus malus*, a red apple. SIEBOLD, *Syn. plant. œcon. jap.*, 350, identifies the same Chinese name with an apple, *Pyrus malus*, occasionally cultivated in Japan.

E., 231, family 梨, with figure of a pear-branch.

The two names of 265 are synonyms. *Jap.*, 1833, *Pyrus ussuriensis*, Max. About *lin k'in*, *v. supra*, 286.

302.—桑辨有葚, a mulberry tree 桑 *sang*, one half of which bears fruit is called 椹 *chi*.

KUO P'O explains that 辨 stands for 半 half.

HING PING:—The *Shuo wen* says 葚 is the mulberry fruit. 舍人 explains the above phrase of the *Rh ya* as I translated it. He adds that the other half of the tree has no fruit.

Sang is the common name of the mulberry tree [*v. infra*, 499]. But *chi*, according to the ancient Chinese botanists, is not a mulberry. The *Shuo wen* says that it is the fruit of a tree, used as a dye. *P.*, XXXVI, 21, 椹子 *chi tsz'*. Mentioned in the *Pen ts'ao king*. The ancient authors describe it as a tree from 7 to 8 feet high, with thick leaves. White fragrant flowers in the second or third month. The fruit has angles, resembles the 訶子 *ho tsz'* (fruit of *Terminalia Chebula*), is used for dyeing a yellow colour. *Ch.*, XXXIII, 43, figures under the above name a *Gardenia*. Comp. HANBURY, *Science Papers*, 241, *Gardenia florida*, figure of the fruit.

Phon zo, LXXXVII, 9-12 梔子, *Gardenia florida*, L., and other species.

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[9] This name in *P.* is given as a synonym for *lin k'in*. It literally means "the birds come." LI SHI-CHEN explains it, following an ancient author, by the fact that birds are very fond of the fruit of this tree.

E., 302, family 梔子, with good figure of *Gardenia florida*, flower and fruit.

S., XII, 18. *H.*, 64. *C.*, 139, 512. *Jap.*, 991.

303.—女桑 *Nü sang* (women's mulberry) 桋桑 *I sang*.

Kuo P'o:—This is the *sang* or mulberry tree. The small variety with long branches is called *nü sang*. [*v. infra*, 499].

The Chinese mulberry is *Morus alba*, L., of which many varieties are cultivated. Several varieties of the same species are figured in the *Phon zo*, LXXXVI, 14-20. There is also the 女桑 18, 19, *M. alba* foliis lobatis, dissectis.

304.—榆 *Yü*; 白枌 *Pai fen*.

Kuo P'o:—This tree flowers early (in spring) and then produces 莢 *kia* fruits [*v. infra*, 469]. Its bark is white [*v. infra*, 528].

The *yü* tree is also mentioned in the *Shan hai king*. It is the elm, *Ulmus*. There are several species of the elm in the North of China, the most common of which in the Peking plain is the *U. pumila*, Pall. This is an improper name founded by PALLAS upon shrubby specimens gathered in Dahuria. At Peking it forms a stately, tall tree. MAXIMOWICZ considers this to be only a variety of our common *U. campestris*. Another species, with large leaves and fruits, *U. macrocarpa*, Hce., grows in the Peking mountains. In South China this genus is represented by *U. parvifolia*, Jacq., which is found also in Japan. In the Peking plain *U. pumila* grows very rapidly. The elm is much valued in North China for its timber, which is variously used, and especially for building carts. A nourishing white meal, containing mucilage, is obtained from the thick inner bark of the tree, much used for food by the mountain people. The same enters also into the composition of the so-called "joss-sticks" (incense sticks) burned in Buddhist temples. The fruit is used as a medicine.

P., XXXV*b*, 30, 榆 *yü*. All the ancient authors quoted by LI SHI-CHEN speak of the white, mucilaginous meal obtained from the bark and used for food. It is called 榆麪. The fruits (莢) are said to resemble Chinese copper coins. In ancient times the people used to gather these fruits and boil them with rice.

The *Kin huang*, LVI, 17, under 榆錢樹 *yü ts'ien shu* (elm coin tree) represents an elm tree in fruit. The flat, orbicular, membranaceous fruit of the elm bears indeed some resemblance to Chinese copper coins. *Ch.* XXXIII, 21, figures only the leaves of the tree.

The name *pai fen* for the elm in the *Rh ya* may perhaps be derived from 白粉 *pai fen*, white meal.

Phon so, LXXXV, 1, 2, 榆 *yü*, *Ulmus campestris*.

Ulmus parvifolia is figured in the same Japanese work, *l.c.*, 4, under the Chinese name 榔榆. According to HENRY, *l.c.*, 217 *U. parvifolia* in Hupei is known under the same Chinese name, *lang yü*.

[*V. supra*, 263.]

305.—唐棣 *T'ang ti*; 栘 *I*.

KUO P'O:—It resembles the 白楊 *pai yang* (white poplar). In Kiang tung it is called 夫栘 *fu i*. [*V. infra*, 475, *Prunus*.]

E., 302, family 唐棣, figure of a tree with large acuminate leaves.

One synonym given by an author in the text is 雀梅. *Sm.*, 58, *Cerasus communis*. *E.*, 205, [*v. supra*, 227, *infra*, 512], which may refer to *Prunus pseudocerasus*.

306.—常棣 *Shang* (*ch'ang*) *ti*; 棣 *Ti*.

KUO P'O:—The *ti* tree grows in the mountains. Its fruit resembles the 櫻桃 *ying t'ao* (cherry); is edible. [*V. infra*, 476, *Prunus*.]

E., 280, family 郁李, with a figure like *Cerasus*. *Tsioh mei* is mentioned as a synonym.

307.—檟 *Kia*; 苦荼 *K'u t'u* (bitter *t'u*).

Kuo P'o:—A small evergreen tree resembling the 梔 *chi* (*Gardenia*). A beverage is made from the leaves by boiling. Now the earliest gathering is called 荼 *t'u*, the latest 茗 *ming*. Another name for the plant is 蔎 *ch'uan*. The people of 蜀 *shu* (Sz'ch'uan) call it *k'u t'u*.

Kuo P'o has evidently the tea-plant in view. The character 荼 *t'u*, which has so many meanings in the Classics, may also have been a name for tea. Besides this it is proved that the character 茶 *ch'a*, now in use to designate tea, has arisen out of the similar looking character 荼 *t'u*. See regarding tea and its history, *P.*, XXXII, 22, under 茗 *ming* or 茶 *ch'a*, and *K.K.F.P.*, XVIII–XXI.

Yen Shi-ku, an author of the 7th century, who commented upon the History of the Earlier Han [B.C. 202-A.D. 25], notices that the change of the character 荼 *t'u* into 茶 *ch'a*, when applied to the tea-plant, took place in this period. Thus the name of the city of 荼陵 T'u ling hien was then changed into 茶陵 Ch'a ling hien, nowadays Ch'a ling chou in Hunan. This is confirmed by the Chinese Geogr. Dictionary, *Li tai ti li chi*, etc., X, fol. 26*b*. Ch'a ling is mentioned in the *Ch'a king* [a treatise on the tea-plant, 8th century] among the tea-producing districts. The character *ch'a* for tea was not in general use before the publication of this treatise.

The *Shuo wen* explains the character 茗 *ming* by 荼芽 *t'u ya* (buds of the *t'u*, or tea-leaf). The 茗菜 *ming ts'ai* (*ming* [or tea] vegetable) is mentioned in the *Yen tsz' ch'un ts'iu*, written some centuries B.C. [*Botan. sin.*, I, 1092] as an article of food at the time of Yen Ying, who was a contemporary of Confucius. We read in the *Shi shuo* [5th century, see *Botan. sin.*, I, 729] that Wang Meng, father-in-law of the Emperor Ai ti, in the middle of the

4th century, was very fond of drinking tea (茶). He used also to set this beverage before his friends who came to visit him, but they found it too bitter, and generally declined, feigning some indisposition.

From the above translated ancient records and many others, which it would be too long to quote, it appears that the use of tea in some parts of China was known to the Chinese in early times, but it was not before the 6th or 7th century that its use as a beverage became common among all classes. The *Ch'a pu*, another treatise on tea, published between the 10th and 13th centuries, states that in the reign of the Emperor WEN TI of the Sui [A.D. 589–605] a Buddhist priest first recommended the boiled *ming* leaves as a medicine to the Emperor, who suffered from head-ache.

KUO P'O mentions 荈 *ch'uan* as one of the ancient names for tea. According to the ancient dictionaries *Tsi yün* and *Lei pien* [11th century] this term denoted the late and old leaves of the tea-plant.

In the above-mentioned *Ch'a king*, 蔎 *she* is given as a name for tea, referring to the third gathering. There is a passage **蜀西南人茶曰蔎**, the people in the south-west of Shu call the *t'u* "*she*." which is attributed to YANG HIUNG (YANG CHI-KI), who lived in the 1st century B.C. [See *Botan. sin.*, I, 106]. The *Shuo wen* defines the character *she* as fragrant herb.

Regarding the character **櫝** as a substitute for **槚**, *see above*, 292.

E. has several volumes devoted to **茶**, not in the botanical portion of the work, but under "Administration of Government," **經濟**, and there, under the heading of "National Economy," **食貨**, 284–296. All the names can be found in chapter 288.—*Sm.*, 212.

308.—**楸樸** *Su p'o*; **心** *Sin.* [Comp. also 284].

KUO P'O :—This is the same as the **槲楸** *hu su*.

Hing Ping :—某 氏 reads *p'o su* (instead of *su p'o*). Name of a timber tree in Middle China. [V. *infra*, 535, *Quercus*].

E., 236, family 槲, with figure of a tree, probably a *Quercus*. *Jap.*, 1837, *Quercus dentata*, Thbg., 槲.

309.—榕 *Yung*; 桐 木 *T'ung mu*.

Kuo P'o :—Same as 梧 桐 *wu t'ung* [which is *Sterculia platanifolia*, *v. supra*, 283].

This is an erroneous identification by the Chinese commentator. [V. *infra*, 515]. The *t'ung* tree is *Paulownia*.

310.—椵 木 *Chan mu*; 干 木 *Kan mu*.

Kuo P'o :—Same as 檀木 *kiang mu*. In Kiang tung it is called 木 胳 *mu ko*. [*Vide infra*, 536, *Quercus*.]

311.—檿 桑 *Yen sang*; 山 桑 *Shan sang* (mountain mulberry).

Kuo P'o :—It resembles the *sang* (cultivated mulberry). The wood is fit for making bows and shafts of carriages. [V. *infra*, 500.]

The wild mulberry tree in the Peking mountains is *Morus alba*, L., var. *mongolica*. It is distingnished by its large membranaceous five to seven lobed leaves. The apex of the leaf is prolonged into a long acumen. The teeth of the margin also show long points.

According to Dr. Geerts' *Japanese Woods*, 檿 in Japan is *Morus indica*, L. See also *Phan zo*, LXXXVI, 14, 15, 山 桑.

E., 245, family 桑. The names are mentioned as synonyms.

312.—木 自 斃 trees that die of themselves [are called] 神 *shen*.

313.—立 死 a dead [tree] remaining erect in the ground is 椓 *tsz'*.

See Legge's *Shi king*, 449.

314.—**糜者** a dead [tree] is called **翳** *I.*
See LEGGE's *Shi king*, 449.

315.—**木相磨** branches of trees rubbing against each other [KUO P'O] is **檡** *I.*

316.—**棤** *Tso*; **皵** *Ts'io.*
KUO P'O:—The rough, coarse bark of a tree.

317.—**梢** *Shao*; **梢櫂** *Shao chao.*
KUO P'O:—A branchless tree.

318.—**樅** *Tsung* **松葉柏身** *Sung ye po shen*, leaves of the *sung* (pine tree), trunk of the *po* (*Thuja*).
KUO P'O:—The wood of this tree is now used for the building of temples.
尸子 SHI TSZ' says:—The rats (thieves) know well that the *tsung* timber is better than that of the *sung* and the *po* (pine and *Thuja*).
In the *K.K.F.P.*, LXXI, 34, is a short and obscure account of the *tsung* tree. It is said to be a tall, coniferous tree. The greenish yellow fruit is first of a sour, harsh taste, but after hoar frost becomes edible.
W.D., 1025, identifies the *tsung*, arbitrarily, it seems, with the larch or spruce, *Larix orientalis*, which latter is an old name [TOURNEFORT] for the Cedar of Lebanon.
SIEBOLD, *Syn. plant. aeon. jap.*, 58, **樅** *Abies Momi*, Lignum subtilitatem et candorem quæsitum. This is *Abies firma.*, S. & Z., [*Jap.*, 4]. *Flora japon.*, II, 15, tab. 107 (same as *A. bifida* and *A. homolepis*, S. & Z., according to FRANCHET). *Phon zo*, LXXVIII, 3.

319.—**檜** *Hui*; **柏葉松身** *Po ye sung shen*, leaves of the *po* (*Thuja*), trunk of the *sung* (pine). [*V. infra*, 506, *Juniperus.*]

320.—**句如羽** curved and bent like the wings of a bird, are called **喬** *k'iao*.

Kuo P'o's explanation says :—Trees with branches curved like wings. *See* LEGGE's *Shi king*, 16, 138 ; *k'iao*, also written **橋**, lofty trees with few or no branches low down.

321.—**下句曰** (with branches) curved downwards, is called **枓** *kin*.

上句曰 curved upwards is **喬** *k'iao*.

HING PING says that *k'in* is the same as **檾木** *kin mu* in the *Shi king*, defined by LEGGE, 10, as trees with curved branches drooping down to the ground and easily laid hold of by creepers.

322.—**如木楸曰** (with branches) like those of the *ts'in* tree [291] is **喬** *k'iao* [*v.* 321].

323.—**如竹箭曰** like the *Chu tsien* bamboo [*see* 174] is called **苞** *pao*.

Kuo P'o :—The luxuriant growth of the **篠** *siao* bamboo [174] is meant.

324.—**如松柏曰** like the *sung* (pine) and the *po* (*Thuja*) is **茂** *mou*.

Kuo P'o :—Luxuriant foliage. *Shi king* **松柏之茂** [LEGGE, 116].

325.—**如槐曰** like the *hwai* tree (*Sophora*) is **茂** *mou* [see the preceding].

326.—**祝州木髦柔英**. Unknown to the Chinese commentators.

327.—**槐棘** the *hwai* (*Sophora*) and the *ki* (jujube) are **雕喬** *ch'ou k'iao*.

This term refers also to the disposition of the branches. Kuo P'o explains **枝皆翹竦**. The character **醜**, which is found also in 328–330, means disgraceful, ugly.

328.—**桑柳** the *sang* (mulberry tree) and the *liu* (willow) are **醜條** *ch'ou t'iao* (ugly branches).

Kuo P'o explains that dropping down branches are meant.

329.—**椒榝** *Tsiao sha*; **醜菉** *Ch'ou k'in*.

Kuo P'o:—*K'in* is the fruit of the **萸** *yü* growing in clusters. In Kiang tung they call it **菉榝** *k'in sha*. It resembles the **茱萸** *chu yü*, but is smaller. It (*i.e.*, the fruit) is of a red colour.

Hing Ping:—Li Sün says that *sha* is the same as *chu yü*.

The *Shuo wen* says, the *sha* resembles the *chu yü*. It is produced in **淮南** Huai nan (Anhui). *Tsiao* is *Zanthoxylon* [*see* 259].

Regarding *chu yü*, *see infra*, 498, *Boymia* and *Zanthoxylon*.

E., 249, family **櫟**. Figures of three different shrubs. *Sha* and *chu yü* are synonyms.

330.—**桃李** the *t'ao* (peach) and the *li* (plum) are **醜核** *ch'ou ho*.

Kuo P'o:—**子中有核人**. It seems to me that he means to say: inside the fruit is the stone with the kernel (**人** for **仁**).

331.—**瓜曰華之** the *kua* (gourd) is called *hua* (flower).

桃曰膽之 the *t'ao* (peach) is called *tan* (liver).

棗李曰薹之 the *ts'ao* (jujube) and the *li* (plum) are *ti*.

樝梨曰鑽之 the *cha* (*Crataegus*) and the *li* (pear) are called *tsuan*.

Kuo P'o says that the above names are selected terms for edible [fruits] 皆啖食治擇之名. The *chu* is a sour, astringent fruit resembling a pear. It is mentioned in the *Li ki*. [*V. infra*, 479.]

I confess that I am not able to explain the sense intended by the authors of the *Rh ya*, in adding the character 之 to the above phrases. With regard to 遫 *ti*, WILLIAMS, *Dict.*, 62, says :—The stem or pedunele of a fruit, especially of the date and pear. *Tsuan* means "to bore."

332.—小枝上線爲喬.

333.—無枝爲檄. A branchless tree is called *hi*.

334.—木族生爲灌. A tree with dense foliage is called *kuan*. [*V. supra*, 296.]

CHAPTER II.

PLANTS MENTIONED IN THE *SHI KING*, THE *SHU KING*, THE *LI KI*, THE *CHOU LI* AND OTHER CHINESE CLASSICAL WORKS.

I.—*Cereals.*

335.—The character 穀 *ku* (written also 穀) for Cereals or Grain, is frequently met with in the classical and other ancient Chinese writings. The *Shuo wen* explains it:—generic term for the hundred (*i.e.*, all sorts of) grains. Whilst Western nations understand by cereals exclusively certain gramineous plants cultivated for their edible grains, which constitute the chief food of man and beast, the early Chinese writers extend the meaning of the character *ku* to some other cultivated plants, as beans, hemp, etc. They variously distinguish five, six or nine kinds of grain.

The term 五穀 *wu ku* or five kinds of grain seems to refer to the oldest classification of grain. It is attributed to the Emperor SHEN NUNG. The ancient commentators enumerated these five kinds as follows:—

1.—稻 *tao*, Rice.
2.—麥 *mai*, comprising Wheat and Barley.
3.—稷 *tsi*, *Panicum miliaceum*, the common Millet.
4.—黍 *shu*, *Panicum miliaceum*, glutinous variety.
5.—菽 *shu*, the Soy bean, *Soja hispida*.

Some commentators have 粱 *liang*, *Setaria italica*, instead of *tsi*, others substitute 麻 *ma*, hemp, *Cannabis sativa*, for *tao*, rice.

MENCIUS says [LEGGE, 297] :—Of all the seeds the best are the *wu ku*, the five kinds of grain. *Ibidem*, 318 :—In Mih (barbarian tribes in the north) not all the five kinds of corn are grown. It only produces the millet, *shu*.

We find the term *wu ku* again in the *Li ki*, I, 272. LEGGE translates :—the five esculent plants. *Ibidem*, I, 121 :—LEGGE translates the same term *wu ku* by "the five kinds of grain," and, I, 291, by "different grain." *Ibidem*, I, 307 :—LEGGE has "the five grains." In this case the Chinese text of the *Li ki* has 五種 *wu chung*, the five seeds. The same term is found in the *Chou li*, II, 269 [BIOT's translation] :—Province de 豫州 Yu tcheou (Honan). Les cultures qui lui conviennent sont les cinq espèces de semences 其穀宜五種.

The ancient Chinese term "the five kinds of grain" is also usual in Japan. We read in *Amœn. exot.*, 834, under 米 :—*come*, Oryza in genere : quinque grana Japoniis *go kokf* secundum excellentiam dicuntur : *come*, Oryza ; o muggi, Hordeum ; *ko muggi*, Triticum ; *daidsu*, Phaseoli facie Lupini (Soja hispida) ; *sjodsu* seu *adsuki*, Phaseoli vulgaribus similes (Phaseolus radiatus).

In the *Chou li* other classifications of the cereals also occur. We read in BIOT's translation, I, 70 :—

L'intendant des mets du palais (膳夫) est preposé aux substances végétales, boissons, viandes assaisonnées, etc. . . . . Pour les substances végétales on emploie les six sortes de grains 六穀 (*liu ku*).

Commentaire A. (CHENG SZ' NUNG) :—

1.—稌 le riz [*v. infra*, 337].
2.—黍 le millet, *chou* [*v. infra*, 341].
3.—稷 le millet, *tsi* [*v. infra*, 343].
4.—粱 le gros millet, *liang*, *Holcus* [*v. infra*, 344, *Setaria italica*].
5.—麥 le blé, *me* [*v. infra*, 339].

6.—菰 le grain de la plante aquatique, *kou* [*v. infra*, 350, *Hydropyrum*].

In another chapter of the *Chou li*, I, 26, we have 九穀 *kiu ku*, the nine kinds of grain :—

Les cultivateurs des trois genres produisent les neuf espèces de grains.

Commentaire A. (CHENG SZ' NUNG) :—

1.—黍 le millet *chou*, *Milium globosum* [the *shu* is *Panicum miliaceum*, *var. glutinosa*, *v. infra*, 341].

2.—稷 le millet *tsi*, *Holcus sorghum* [the *tsi* is the common *Panicum miliaceum*, *v. infra*, 343].

3.—秫 riz qui produit une liqueur fermentescible [this is a glutinous variety of *Setaria italica*, but sometimes this character refers to glutinous rice, *v. infra*, 348].

4.—稻 *tao*, le riz en général.

5.—麻 le chanvre.

6.—大豆 le grand *teou*, *Dolichos* [this is the soy bean, *v. infra*, 355].

7.—小豆 le petit *teou*, pois [*Phaseolus radiatus*, *Ph. Mungo*, *v. infra*, 356].

8.—大麥 le grand *me*, l'orge.

9.—小麥 le petit *me*, le blé.

The Commentator B. (CHENG HÜAN) substitutes for (3) the character 粱 (*Setaria italica*) and for (8) the character 菰 (*Hydropyrum*).

E., 23, 24, 禾穀, treat of Cereals in general.

E., 25–28, family 稻 of rice [*v. supra*, 71]. *E.*, 29, family 粱, *Setaria italica*, and family 稷, with figure probably of *Panicum glaucum* [*v. supra*, 27]. *E.*, 30, family 黍, *Panicum miliaceum*. *E*, 31, family 粟 [*v. infra*, 347], and family 秫 [*v. supra*, 28]. *E.*, 32–34, family 麥 *Triticum* and *Hordeum*. Family 雀麥 [*v. supra*, 32] to which are appended 燕麥 [*v. supra*, 32, 151] *Brachypodium sylvaticum*, and 蕎麥, *Fagopyrum*.

Jap., 1098, *Hordeum vulgare*, L., 大麥.

Jap., 2112, *Sorghum saccharatum*, Pars. 蜀黍.

Jap., 936, *Fagopyrum esculentum*, Moench, 蕎麥.

Jap., 371, *Brachypodium sylvaticum*, Roem. & Schult., 燕麥.

336.—The character 禾 *ho*, another general term for cereals, occurs frequently in the Classics. The *Shuo wen* explains it by 嘉穀, excellent corn. The *Kuang ya* says *ho* is a term for growing ripe plants of millet and rice. Chu Hi explains that it is a general name for growing grain in stalks.

Legge, in the *Shi king*, 232. 469, says that *ho* means growing grain, especially paddy (rice). *W.D.*, 254, *ho*=growing grain, especially paddy in the Southern Provinces and wheat in the Northern; grain, corn.

337.—Among the cultivated plants which furnish cereal food to the Chinese, *Rice* takes the most important place. It was cultivated in China from a very early period and is frequently noticed in almost all the ancient classical works under the name of 稻 *tao*, which is still in use.

W.D., 868, says that *tao* means rice when growing in the field, paddy, and [590] that rice after it is hulled is called 米 *mi*. Legge translates *tao* by rice in the plant, paddy, also unhulled rice.

Li ki, I, 117:—According to the rules for all sacrifices in the ancestral temple, *tao*, paddy, is called 嘉蔬 *kia shu* (the admirable vegetable). I, 226, *tao*, unhulled rice, presented by the common people, in winter, for the sacrifice to the spirits of the land. *Ibidem*, I, 295 [*Yue ling*]:—Last month of autumn, the Son of Heaven eats dog's flesh with rice. *Ibidem*, I, 459, 460:—Rice used for food by the common people [10] and must made of rice.

[10] *Li ki*, I, 459. Legge's translation. My observations in brackets. Of grain food there were:—millet [黍, *v. infra*, 341, *Panicum miliaceum glutinosum*], the glutinous rice [*sic*] [稷 *v. infra*, 343, *Panicum miliaceum*], rice (稻), maize [粱 *v. infra*, 344, *Setaria italica*], the white millet (白黍), and the yellow maize [黃粱 *v. infra*, 344, variety of *Setaria italica*], cut when ripe or when green.

Chou li, I, 366 :—稻人 *tao jen*, superintendent of the cultivation of rice. II, 268, 270, 273, 275 :—Rice produced in various parts of China.

Shi king, 184 :—We cannot plant our rice and maize [*v. infra*, 344], how shall our parents get food? 231 ["Life in Pin"] :—In the tenth month they reap the rice. 379 :—The millet, the rice and the maize will awake the joy of the husbandmen. 416 :—How the water from the pools flows away to the north, flooding the rice-fields! 622 :—Hou Tsi [*v. infra*, 343] taught the people how to sow and to reap rice and other cereals.

338.—稌 *t'u* is another ancient name for rice, met with in the Classics. LEGGE and WILLIAMS translate *t'u* by glutinous rice, good for making spirits.

Li ki, I, 460 ["Diet of the Ancient Chinese"] :—Broken glutinous rice (*t'u*) with dog soup or hare soup. I, 461 :—Glutinous rice (*t'u*) was thought to suit beef.[11]

Chou li, I, 94 ["Diet of the Son of Heaven"] :—Le riz (稌) convient avec le bœuf.

Shi king, 586 :—Abundant is the year with much millet and rice (稌).

There is a good deal of confusion and contradiction in the interpretation of the characters 稻 *tao* and 稌 *t'u* by the ancient commentators on the Classics. The *Rh ya*, 71, gives *tao* and *t'u* as synonyms. Kuo P'o states that, in the kingdom of P'ei, *t'u* is the usual name. We read in the

[11] *Li ki*, I, 461, LEGGE's translation. My remarks in brackets.

The glutinous rice [稌, *v. infra*, 338] was thought to suit beef; millet [黍 *Panicum miliaceum glutinosum*, *v. infra*, 341] to suit mutton; glutinous millet [稷 *Panicum miliaceum non glutinosum*, *v. infra*, 343] to suit pork; maize [粱 *Setaria italica*, *v. infra*, 344] to suit dog; wheat (麥) to suit goose; and the broad-leaved squash [苭 *Hydropyrum latifolium*, *v. infra*, 350] to suit fish.

The same statements are found in the *Chou li*, I, 94.

Shuo wen that in the same kingdom the *tao* is called 稬 *no*. But, as is well known, *no* is the glutinous rice, the grains of which, when boiled, become sticky. In the *Rh ya i* [12th century], as quoted in *K.D.*, it is stated:—The grain of the *tao* looks like frozen dew. It grows in water. Another name is *t'u*. There are two varieties of it, one of them is glutinous, the other not glutinous. Nowadays [*i.e.*, in the 12th century] the people term the first *no*, the other 秔 *keng*. The *Shuo wen* defines the latter character, which is also written 粳 *keng*, as a kind of rice, and gives 䊜 *lien* as a name for rice without the glutinous matter. From the above passage in the *Rh ya i*, it appears that *tao* is taken there, as nowadays, as a general name for all kinds of rice. The author of the *Pen ts'ao kang mu*, however, [*P.*, XXII, 31] considers 稻 *tao* to be a name designating glutinous rice [as does the *Shuo wen*], and treats of the common rice separately under the head of 粳 *keng* [XXII, 34].

In his *Li ki*, I, 302, LEGGE translates the characters 秫 稻 *shu tao* by rice and other glutinous grains. Although the first of these characters, according to the dictionaries, means glutinous millet [*v. infra*] I am not satisfied with LEGGE's translation. *Shu* is, I think, here to be taken as an adjective, in the sense of glutinous, and by *shu tao* [used for the preparation of liquors, as the text says] glutinous rice is meant. *P.*, *l. c.*, quotes a passage from an old treatise on husbandry, in which the author, FANG SHENG-CHI [1st century B.C.] says:—In the third month the 秔 稻 *keng tao* [or common rice, *v. supra*] is sown, in the 4th month the 秫 稻 *shu tao*. LI SHI-CHEN adds that the latter is the glutinous rice.

In the *Shan hai king* the 稌 米 *t'u mi* and the 稻 米 are mentioned together with the 糈 *sü* as used in offerings to the mountain spirits. The character *sü* occurs also in the *Li sao*, 50. HERVEY DE SAINT-DENYS translates it:—Le riz purifié des sacrifices.

Amœn. exot., 834 :—粳 *ko*, vulgo *motsi gomme*. Planta Orizæ grano pingui, albissimo.

糯 *da v. motsi no jone*. Oryza grano mucriori, superficie rubente.

Phon zo, XL, 15-21, various varieties of rice figured under the above Chinese names.

339.—After rice, *Wheat* seems to be the most important of the cereals cultivated by the Chinese. Its culture can likewise be traced back to remote antiquity. It was known to the ancient Chinese by the same name, 麥 *mai*, as nowadays. In the popular language it is called 小麥 *siao mai* (little *mai*) whilst by 大麥 *ta mai* (great *mai*) barley is designated. Both these popular terms are also of ancient use, for they are found in FANG SHENG-CHI's treatise on husbandry [1st century B.C.] The *Shuo wen* explains the character *mai* by 芒穀 *mang ku* (bearded grain).

Another ancient and classical name for wheat is 秾 *lai*, written also 麳, and sometimes simply 來, without the radical, as in the *Shi king*. This latter character forms also the upper part of the radical character 麥 *mai*.

The *Shuo wen* says that this corn is an excellent present, which came down to man from heaven, wherefore the character designating wheat includes the character *lai* "to come." According to the same *Shuo wen*, 秾 *lai* is the common name for wheat in the kingdom of 齊 Ts'i (Northern Shantung).

Wheat is not noticed in the *Rh ya*, although the character 麥 occurs twice in the text [32 and 125] forming a part of compound names of plants. The *Kuang ya* has 麳 *lai*, same as 小麥.

Li ki, I, 226, 麥 wheat presented with fish for sacrifices at the altar of the spirits of the land. I, 249, 257 :—The Son of Heaven eats wheat and mutton. 271 :—He tastes wheat along

with pork. I, 289 :—The officers stimulate the wheat-sowing, in the second month of autumn. I, 460 :—A condiment of wheat with soups of dried slices and of fowl (diet of the ancient Chinese). I, 461 :—Wheat suits goose.

Chou li, II, 270 :—麥 wheat produced in the Province of 青州 Ts'ing chou (Southern Shantung). I, 94 :—Wheat suits goose.

Shi king, 79 :—I am going to gather the wheat, 麥, in the north of Mei (which was north of the Yellow River). 89 :—I would have gone through the country amidst the wheat so luxuriant. Also 122-172 :—Large rats do not eat our wheat. 232 ["Life in Pin"] :—Gathering of wheat and other grains in the 10th month. 469, 620 :—Hou tsi [*c. infra*, 343] sows wheat. 620 :—O accomplished Hou tsi, thou didst give grain food to our multitudes, thou didst confer on us the wheat 來 and the barley 牟 which God appointed for the nourishment of all! 582 :—How beautiful are the wheat 來 and the barley 牟, whose bright produce we shall receive!

Ch'un ts'iu, 113 :—There was [B.C. 664] a great want of wheat 麥 and rice 禾.

Comp. regarding wheat *P.*, XXII, 17, 小麥 *siao mai*, and the drawing under the same name, *Ch.*, I, 13. See also *Phon zo*, XL, 8. *Amœn exot.*, 834, 麥 *baku*, vulgo *mugi*, frumentum in genere, et in specie Hordeum.

340.—*Barley*, although it has never been cultivated to a great extent in China, for the Chinese esteem it much less than wheat, was nevertheless known to them in the early days of Chinese husbandry. The classical name of this cereal is 麰 *mou*, sometimes, as in the *Shi king*, written 牟, without the radical. The character *mou* is not found in the *Rh ya*; the *Kuang ya* explains it by 大麥 *ta mai* (the great *mai*), which latter is still the popular Chinese name for barley.

Wheat and barley in Chinese books are often termed the 二麥 *rh mai* or the two *mai*, the smaller and the greater.

Barley is twice mentioned in the *Shi king*, together with wheat [*see* 339].

MENCIUS, 280, terms the barley 麰麥 *mou mai*.

Comp. regarding barley *P.*, XXII, 23, 大麥 *ta mai* and the drawing *Ch.*, I, 15. See also *Phon za*, XL, 8; *Amœn. exot.*, 834.

341.—Frequent mention is made in the Chinese Classics of the common millet, *Panicum miliaceum*, L., of which the Chinese from early times distinguish two varieties, the 黍 *shu* and the 稷 *tsi*. [See *P.*, XXIII, 1–5.] The *shu* is characterised by a glutinous matter contained in its seeds, which property becomes apparent when these seeds are boiled, whilst the seeds of the *tsi*, like those of the *Panicum miliaceum*, cultivated in the south of Europe, are not glutinous. Complete herbarium specimens of both varieties were sent from Peking to the late Dr. HANCE and to other competent botanists for examination. These botanists were not able to make out any botanical difference between these two, considered by the Chinese as distinct plants.

The 黍 *shu* has now the same name as in ancient times. It is much cultivated throughout the Empire. The hulled grains are called 黃米 *huang mi* (yellow grain, also an ancient term). The 稷 *tsi* is known at Peking under the popular name of *mei tsz'*. They write the first character 糜 or 麋. This is likewise an ancient synonym. *P.* quotes an author of the Han dynasty, who says that in the western part of Northern China the *tsi* is called *mei* (or *mi*).

Drawings of the *shu* and the *tsi* are given in *Ch.*, I, 22, 25.

KÆMPFER, in his *Amœn. exot.* [834] notices only the 稷 *sioku* vulgo *kibi*. Milium vulgare, semine luteo. The

Phon zo [XLI, 1, 2] considers 稷 and 黍 to be synonyms, and represents under these names *Panicum miliaceum*.

The *Shuo wen* calls the *tsi* the best of all grains, notices the glutinous properties of the *shu*, and quotes a statement by CONFUCIUS, that the *shu* is employed in producing fermented liquors [as nowadays]. *P.* quotes ancient authors who speak of the likeness of the two plants, the only difference being the glutinous seeds of the *shu*.

LEGGE translates the character *shu* generally by millet. In the *Shi king* he identifies it, on the authority of WILLIAMS, with *Milium nigricans*.[12]

BIOT [*Chou li*, I, 26, 94] calls the *shu* erroneously *Milium globosum*, also gros millet.

Li ki, I, 80 :—Do not use chopsticks in eating millet (*shu*). I, 117 :—According to the rule for sacrifices in the ancestral temple, the *shu* is called 薌合 *hiang ho*, the fragrant mass. I, 226 :—For the sacrifices at the altar of the spirits of the land and grain, the common people in autumn presented millet (*shu*). I, 273, [*Yue ling*] :—In the second month of summer the husbandmen present [the first fruit of] their millet (*shu*). I, 297, [*Yue ling*] :—In the first month of winter the son of Heaven eats millet (*shu*) and sucking pig. I, 368 :—Roasted millet (*shu*). I, 459 [" Diet of the Ancient Chinese "] :—Millet (*shu*) used for food. 460 :—Used for making fermented liquors. 461 :—Millet (*shu*) suits mutton.

Chou li, I, 94 :—Le gros millet (黍) convient avec le mouton. II, 272, 274 :—The *shu* and the *tsi* mentioned as produced in the Provinces of 雍州 Yung chou (Shensi) and 冀州 Ki chou (Shansi).

Shi king, 110 :—There were the millet (*shu*) with the drooping heads, and the sacrificial millet (*tsi*) in the blade—

[12] I may observe that *Milium nigricans* is a Peruvian graminea, which has nothing to do with *Panicum miliaceum*.

in the ear—in grain. 183 :—We cannot plant our millet (*shu*) and sacrificial millet (*tsi*). 232 ["Life in Pin"]:—The millets *shu*, the early sown, and *tsi*, the late. 263 :—When we were marching at first the millets (*shu* and *tsi*) were in flower. 375, 377, 379, 382 :—*Shu* and *tsi* mentioned together. 621 :—Hou tsi [*v. infra*, 343] knew how the *shu* ripened early and the *tsi* late.

In the *Shu king* the *shu* and the *tsi* are frequently mentioned.

Mencius [318] said :—In Mi (barbarian tribes in the north) not all the five kinds of corn are grown. It only produces the millet *shu*.

342.—In ancient Chinese works several varieties of the *shu* or glutinous millet are distinguished—the black, white, red, yellow, the double-kernelled.

The character 秬 *kü*, repeatedly mentioned in the Classics, is explained in the *Rh ya* [69] by 黑黍 *hei shu* (black glutinous millet). This millet was used in ancient times for making fermented liquors, 鬯 *ch'ang* employed in sacrifices [*v. infra*, 349]. Williams [*Dict.*, 439, 776] suggests that the black-seeded millet of the Classics may have been a variety of *sorghum*, for no species of *Milium* now cultivated has black seeds. I do not agree with this view, for there is evidence from ancient Chinese authors that *sorghum* became first known in China in the 3rd century of our era. It had probably been introduced from India. The character *hei*, meaning black, is not necessarily to be taken literally ; it may in this case mean dark coloured.

Chou li, I, 398, 468 :—Si l'empereur meurt le sous-supérieur des cérémonies sacrées fait laver le corps avec du vin de millet noir 秬 鬯.

L'officier du vin odorant est chargé de préparer le *tchang* (鬯) ou vin odorant extrait du millet noir (秬).

Shi king, 470 :—Hou tsi [*v. infra*, 343] gave his people the beautiful grains, the black millet (*kü*) and the double-kernelled, etc ; and [620] he taught the people how to sow and to reap the millets *shu* and *tsi* and the black millet (*kü*).

A variety of the *kü* or black millet was called 秠 *p'ei*. The text of the *Rh ya* [70] explains that two seeds are contained within one glume, and Kuo P'o adds that it is a variety of the black millet. I am not prepared to say what this double-kernelled millet was. It is once mentioned in the *Shi king* together with the *kü* [*v. supra*].

The 白黍 *pai shu* or white (glutinous) millet is mentioned in the *Li ki* [1, 45] among the grains used for food.

343.—The 稷 *tsi*, the common millet, *Panicum miliaceum*, (the seeds of which are not glutinous) was in the classical period much used in sacrifices. *Tsi* was also the title of an office exercised under the Emperor Shun [B.C. 2255] the functions of which were the supervision of agriculture. The holder of this post was 棄 K'i, a brother of the Emperor Yao, to whom the princes of the house of Chou traced their lineage. [*See* Mayers' *Chinese Reader's Manual*, p. 223, and *Botan. sin.*, I, p. 76.] He was known under the title 后稷 Hou tsi. Two odes of the *Shi king* [pp. 465, 620] are devoted to him.

Legge translates the character *tsi* generally correctly by "panicled millet" or "sacrificial millet," but in the *Li ki* twice erroneously by "rice." *Li ki*, I, 443:—*Artemisia* along with millet and rice (the text has 黍稷) burned with the fat of the victims in sacrifices. *Id.*, I, 459 :—Of grain food there were millet, the glutinous rice, rice (the text has 黍稷稻). *Id.*, I, 461 :—Glutinous millet (the text has 稷 common millet) suits pork.

Biot, *Chou li*, I, 94 :—Le petit millet (*tsi*) convient avec le porc. *Id.*, I, 26, Biot identifies the *tsi* erroneously with *Holcus sorghum*.

Regarding other passages in the *Chou li* and the *Shi king*, where *tsi* occurs with *shu*, see the latter [341]. The *shu* and the *tsi* are frequently mentioned in the *Shu king*.

The character 粢 *tsz'* of the Classics is given in the *Rh ya* [27] as a synonym of 稷 *tsi*.

In the *Li ki* [I, 117] we read :—According to the rules for sacrifices in the ancestral temple, the sacrificial millet (稷) is called 明粢 *ming tsz'*, the bright grain.

Chou li, I, 445 :—Le sous-supérieur des cérémonies sacrées distingue le nom et la couleur des six sortes de grains consacrés, 六齍 *liu tsz'*, ainsi que leur usage special. Commentaire B. [Cheng Hüan] :—*Tsz'* est ici pour 粢 nom générique des six grains [*r. supra*, 335].

The character 粢 appears in the *Shu king* [286]. Legge :—A kind of millet. Mencius [142] says :—It is said in the *Li* (Book of Rites) : a prince ploughs himself and is assisted by the people to supply the millet of sacrifice 粢盛.

The same character *tsz'* is met with in the *Tso chuan* [48, 49]. The commentary explains it by 黍稷.

Legge [*Shi king*, 110] says that the character 穄 *tsi* is the same as 稷. It is not found in the Classics, but it was in use several centuries B.C., as appears from the quotations in *K.D.* The *Shuo wen* identifies it with 糜 *mi*, which, as we have seen, is a popular name for the common millet.

344.—Another important millet, most extensively grown all over the Chinese Empire, especially in the Northern Provinces, the 粱 *liang*, is also frequently mentioned in the Classics. It is the *Setaria italica*, Kth., (*Panicum*

italicum, L.), easily distinguished from the panicled millet by its long and dense compound nodding spikes. This is also largely cultivated for food in the South of Europe.

See regarding the *liang*, *P.*, XXIII, 7. The popular name of it at Peking is 穀子 *ku tsz'*, the hulled corn is called 小米 *siao mi* (small grain). Its grains are much smaller than those of *Panicum miliaceum*. In the north of China, where rice is not much cultivated, it forms the principal food of the lower classes.

A good drawing of the plant, under *liang*, is found in *Ch.*, I, 18. The plant figured under 粱 in the *Phon ts'ao* [XLI, 7, 8] is likewise *Setaria italica*.

Biot [*l.c.*, I, 70] translates the character *liang* by gros millet or *Holcus*. Legge renders it by large-grained millet, but more generally by maize. I may observe that maize, an American plant, was unknown to the ancient Chinese. Williams [*Dict.*, 525] identifies the *liang* correctly with the common spiked millet, but he is wrong in calling it "canary seed," for the latter is supplied by *Phalaris canariensis*.

Li ki, I, 106 :—In bad years, when the grain is not coming . . . . . the great officers will not eat the large-grained millet (*liang*). I, 117 :—According to the rules for the sacrifices in the ancestral temple, the *liang* is called 薌萁 *hiang ki* [regarding *ki*, *see infra*, 354]. I, 429 ["Grain Food of the Ancient Chinese"] :—Maize (*liang*) and yellow maize (黃粱), cut when ripe or when green. I, 461 :—Maize (*liang*) suits dog.

Chou li, I, 94 :—Le millet *liang* convient avec le chien.

Shi king, 184 :—We cannot plant our rice and maize (*liang*), how shall our parents get food? 301 :—Yellow bird, do not eat my maize (*liang*). 379 :—The millets, the rice and the maize (*liang*) will awake the joy of our husbandmen.

MENCIUS, 296 :—He who is benevolent and righteous does not wish for fat meat and fine millet (*liang*).

345.—In the *Shi king* [470,] in the ode devoted to the legend of HOU TSI, mention is made of a millet 糜 *men*. LEGGE terms it the tall red millet, large-grained millet, a variety of *Holcus*. WILLIAMS [*Dict.*, 577] says that *men* is the name of a variety of millet with reddish culms, now applied in Chihli to the glutinous grain of the 黍 *shu* or panicled millet, *Milium*, called 糜子米 *men tsz' mi*, and used in distilling spirits. But WILLIAMS is mistaken. He intends, it seems, the 糜子 *mei tsz'*, which is the common panicled millet, not the glutinous variety [see the preceding].

The Chinese commentator on whom LEGGE relies, explains the above character *men* by 赤粱粟 *ch'i liang su*, red spiked millet, and KUO P'O explains by the last three characters the 麇 *men* or 赤苗 *ch'i miao*, red blade of the *Rh ya*, 67. The *Shuo wen* writes 赤苗嘉穀, excellent corn of the red blade. HING PING says that the character *men* in the *Rh ya* is the same as the *men* of the *Shi king*. *P.*, however, takes these names to refer to varieties of the *shu* or glutinous millet, not of the *liang* or *Setaria italica*.

346.—There occurs in the *Shi king* also the character 芑 *k'i*, applied to a kind of millet, which LEGGE terms the white millet. It is mentioned, together with other cereals, [470] in the ode devoted to HOU TSI. 284 :—Gathering of white millet in the fields brought only one year under cultivation. 463 :—By the Feng water grows the white millet.

The text of the *Rh ya*, [68] explains *k'i* by 白苗 *pai miao*, white blade ; the *Shuo wen* writes 白苗嘉穀, excellent corn of the white blade. KUO P'O explains it by 白粱粟 *pai liang su*, white *Setaria italica*. *P.*, however, thinks that it was a variety of the glutinous millet *shu*.

Mao is of opinion that in the above-quoted passages from the *Shi king* the character *k'i* refers to different plants, for in 470 he explains it by 白苗, as in the *Rh ya*; in 284 by 菜 vegetable; and in 463 by 草 herb. Lu ki describes the *ki* as a kind of sow-thistle [*c. infra*]. Chu Hi also understands by *k'i* the 苦菜 *k'u ts'ai* or sow-thistle. But Legge, following Yen ts'an and Kiang Ping-chang, translates *k'i* in all the three passages by white millet.

In the *Shan hai king*, *k'i* is the name of a tree, 苢木.

347.—The character 粟 *su*, applied nowadays to a distinct grain plant (*Setaria*), had in ancient times only the meaning of unhulled grain. Legge [*Mencius*, 466, note] states that *su* was rice in the husk, and 米 *mi*, hulled rice, that according to the *Pen ts'ao kang mu*, anciently *su* was the general name for all glumaceous grain, and that it is now commonly used for millet.

Li ki, I, 84:—粟米 *su mi*, unhulled grain and hulled grain. The commentary says:—*su* same as *ku* (general name for grain). After the husk has been taken off it is called *mi*.

Chou li, I, 390:—Les officiers des dépôts sont chargés de conserver les quantités livrées de grains non écorcés (粟).

Shi king, 301:—Yellow bird, do not eat my paddy (*su*). 335:—With a handful of grain (*su*) I go out and divine how I may be able to become good.

Shu king, 142:—Five hundred *li* constituted the imperial domain. From the first hundred *li* they brought as revenue the whole plant of the grain (總); from the second they brought the ears (銍); from the third they brought only the straw (秸), but had to perform other services; from the fourth they gave the grain in the husk (粟), and from the fifth the grain cleaned (米).

MENCIUS, 85 :—Rice and other grain (米粟) CONF. *Anal.*, 49, grain (*su*). *Ch'un ts'iu*, 759 :—In summer we sent grain (*su*) to Ts'ai.

The explanation of the character 粟 in the *Shuo wen* is 嘉穀實, the fruit of the excellent cereal.

In *P.*, XXIII, 9, 粟, it is stated that originally *su* was a general name for grain, but in later times this term was applied to the 粱 *liang* or spiked millet, and especially to a variety of it distinguished by its smaller spikes and shorter bristles. Such a plant is figured under the name of *su* in *Ch.*, I, ii.

Amæn. exot., 835 :—粟 *dsjekie*, vulgo *awa*. Panicum, juba magna pendula, villosa, semine aureo. Panicum domesticum, Matth. Panicum indicum, Tabern. KEMPFER refers, it seems, to *Setaria italica*. [Comp. HOFFM. & SCHULTES, 408, *Phon zo*, XLI, 9, 10.]

348.—The *Setaria italica* in China has, like the panicled millet, produced varieties with glutinous seeds. LI SHIH-CHEN, in *P.*, XXIII, 12, and before him earlier writers, identify the grain plant 秫 *shu*, mentioned in the Classics, with a glutinous variety of 粱 *liang* or 粟 *su*. The *Rh ya*, 28, gives *shu* as a synonym of 黍 *chung*, and KUO P'O explains it by glutinous *su*. Other Chinese authors seem to confound 秫 with the homophonous character 黍 *shu* [*c. supra*, 341]. The *Shuo wen* says that it is a glutinous variety of the 稷.

Regarding the meaning of 秫 in the *Li ki* [*c. supra*, 338].

Chou li, II, 516 517 :—Pour teindre les plumes qui doivent orner les étendards et les drapeaux du char de l'empereur, on trempe dans le cinabre des grains de millet rouge (秫). Après trois lunes on les fait cuire. On les arrose et on y trempe les plumes. BIOT, in translating the

character *shu*, follows Commentator A. (CHENG SZ'-NUNG), who explains it by 赤粟 red *su*.

A variety of *Setaria italica* with red glutinous seeds is cultivated in the neighbourhood of Peking under the name 紅粘穀子 *hung nien ku tsz'* (red glutinous *Setaria*).

[Compare the drawing in the *Phun tso*, XLI, 11, 12, 秣 *Panicum* ?].

349.—The use of intoxicating beverages prepared from the grains of cereals was well known to the Chinese in the classical period. The characters 酒 *tsiu*, nowadays a general name for spirits, wine, beer and other drinks, and 醉 *tsui*, to be drunk, are repeatedly met with in the odes of the *Shi king* and also in the other Classics.

Shi king, 395:—Ode against drunkenness. 399:—When they have drunk too much they become insensible of their errors. With their caps on one side and like to fall off, they keep dancing and will not stop.

Shu king, 399:—Book X is entitled 酒誥 [the Announcement about Drunkenness] ascribed to the Duke of Chou [12th century B.C.] The debauchery of Kee was the chief cause of the downfall of the Hia dynasty. The Duke said:—When Heaven was sending down its favouring decree, and laying the foundation of the eminence of our people, spirits (酒) were used only in the great sacrifices. . . . The ruin of states may also be traced invariably to their crime in the abuse of spirits.

The invention of wine or spirits in China is generally ascribed to a certain 儀狄 I TI, who lived in the time of the Emperor Yü. [See regarding this legend MAYERS' *Chinese Reader's Manual*, 230.] According to others the inventor of wine was 杜康 TU K'ANG [see *P.*, XXV, 31].

LEGGE translates the character 酒 *tsiu* in the Classics by liquor or distilled spirits, and states that it always denotes

the product of distillation and has been incorrectly translated by wine. 醴 *li* is the product in its earlier stage, before the process of distillation is commenced, after the mashing and fermentation, as the Chinese commentator explains :—when the juice and the refuse are mixed together, it is called 甜酒 or sweet spirits. [LEGGE's *Shu king*, 260, 399, *Shi king*, Prolog., 153.] The character 烝 *cheng* [to steam, *W.D.*, 74] occurring in the Classics in connection with the fabrication of spirits, is translated "to distil" by LEGGE [*Shi king*, 471], and 湑 *sü* and 醴 *li* are rendered by "to strain off spirit." For straining, the ancient Chinese used the 茅 *mao* grass [*v. infra*, 459].

Dr. EDKINS has, it seems to me, convincingly refuted Dr. LEGGE's opinion that the *tsiu* of the ancient Chinese was the product of distillation, for in his papers on the subject [*China Review*, VI, 211; XV, 309] he gives reasonable certainty that distillation was entirely unknown in Chinese antiquity. EDKINS proposes to translate 酒 *tsiu* by "wine." The *tsiu* used in sacrifices, etc., was simply produced by fermenting grain without distilling the liquor. According to *P.*, XXV, 41, distillation was introduced into China during the Mongol dynasty. LI SHI-CHEN therefore distinguishes between 酒 *tsiu* (wine) and the 燒酒 *shao tsiu* (or fired [distilled] wine), for which he gives the foreign equivalent 阿剌吉 *a-la-ki*. Evidently *arak*, the Persian name for brandy, is meant.

Nowadays the strong distilled spirit, made in the north of China from the grains of sorghum, is called *san shao* (thrice fired) which is pronounced *sam shu* in the south.

Quotations from the Classics regarding wine :—

Li ki, I, 181, 135. I, 117 :—According to the rules for the sacrifices in the ancestral temple, spirits (酒) are called 清酌 (the clear cup). I, 460 ["Diet of the Ancient Chinese"] :—Of drinks there was must (醴 *li*) in two vessels, one strained,

the other unstrained, made of rice (稻), millet (黍), or of maize (粱). I, 301, [*Yue ling*] :—Second month of winter. Orders are given to the grand superintendent of liquors (酒正) to see that the rice and other glutinous grain are all complete ; that the leaven cakes (麴蘗) are in season.

Chou li, I, 99 :—L'intendant des vins (酒正) est chargé de la direction générale des vins. I, 101 :—Les employés aux vins sont chargé de faire les cinq vins de libation, et les trois vins qui se boivent. [For particulars regarding these wines, *see* LEGGE'S *Li ki*, I, 460, 447.]

According to the ancient authors quoted in *P.*. XXV. 31, article *tsiu*, wine in China was made in ancient times, as in our days, of the grains of rice (it seems especially glutinous rice), glutinous panicled millet (*shu*), and glutinous spiked millet (*liang*).

There is in the Asiatic Museum of St. Petersburg amanuscript, presented in 1755 to the Academy by the Jesuit Father D'INCARVILLE. [Comp. my *Early European Researches on the Flora of China*, 122]. It treats of the natural objects found in the neighborhood of Peking, and concludes with a treatise on Chinese wine :—Vin ou plustôt bière blanche de Chine, faite avec du riz et du mil rond, en chinois *hoang tsieou* (vin jaune). D'INCARVILLE gives a detailed description of the mode of preparing this wine or beer from the boiled *hoang mi* (glutinous panicled millet), to which is added *kiu tze* (麴子), or yeast made of wheaten flour, in order to produce a vinous fermentation, etc.

A similar account regarding the same subject was given by Father CIBOT in the *Mém. conc. les Chinois*, V. 457 :—Vin de Chine qui est une vraie bière, fait de mil rond monde. Comp. also DABRY DE THIERSAUT, "Vins et eaux-de-vie chinoises," in *Bull. Soc. d'Acclim. de Paris*, 1878, 90-1102.

The common *tsiu* or 黃酒 *huang tsiu* of the Chinese of our days, which I believe is the *tsiu* of the Classics, in North

China is made of the glutinous panicled millet (*shu*); in Middle and South China glutinous rice is more generally used. This rice is employed for the fabrication of the much-esteemed wine of Shao hing, a city of Chekiang. Dr. DUDGEON, in his interesting book [*Diet. Dress, etc., of the Chinese*, p. 113] compares the Chinese yellow wine of Peking to a weak Sherry.

In the classical period the Chinese used to prepare from the 秬 *kü* or black millet a peculiar fragrant wine called 鬯 *ch'ang*. It was employed in sacrifices. They mixed it with the plant 鬱 *yü* [*v. infra*, 408].

Chou li, I, 468, 398 :—L'officier du vin odorant (鬯人) est chargé de préparer le *tchang* ou vin odorant extrait du millet noir (秬 *kü*). Commentator B. (CHENG HÜAN) :—On fait fermenter le millet noir et on en fait du vin, dont le parfum se répand en haut et en bas, lorsque le représentant du défunt ou de l'ancêtre fait la libation. MA YOUNG dit que *tchang* est une plante aromatique, mais KONG YING-TA observe que c'est le nom spécial d'un vin qui se fait avec le millet noir et deux parties de riz. I 451 :—Si l'empereur meurt, il y a la cérémonie de la grande préparation du corps. Le sous-supérieur des cérémonies sacrées fait alors laver le corps avec du vin de millet noir (秬 鬯).

Li ki, I, 119 :—Spirits of black millet (*ch'ang*). II, 141 :—Sacrificial spirits (*ch'ang*). *Shi king*, 554 :—Herb-flavoured spirits of the black millet. Idem, *Shu king*, 449, 618.

麴 *k'ü*, also written 麯, is the Chinese name for leaven, used to produce fermentation in making wine. The *Shuo wen* explains the character by 酒母 *tsiu mu*, mother of wine.

Leaven cakes, 麴糵 *k'ü ye*, are mentioned in the *Li ki*, *Yue ling* [see quotation above] and in the *Shu king*, 260, where LEGGE translates *k'ü ye* by "malt,"

According to *P.*, XXV, 17, the *k'ü* or leaven is prepared from wheaten flour, also from barley or rice. d'Incarville and Cibot say from wheaten flour, barley or oats.

Vinegar, usually procured from an infusion of malt which has previously undergone the vinous fermentation, was also known to the Chinese in early days. Biot translates the character 醯 *hi* [in the *Chou li*, I, iii], by "vinegar." Legge renders the same by "pickles" [*Li ki*, I, 79]. *W. D.*, 177, same character defined by "sour, vinegar like." In the *Shuo wen*, *hi* is explained by 酸 *suan* (sour), and *P.*, XXV identifies it with 醋 *ts'u* (also written 酢) which is the modern name for vinegar.

Regarding the Chinese mode of making vinegar compare d'Incarville and Cibot, *l. c.*

E., "Administration of Government" [*v. supra*, 307, note], "National Economy," 酒 269–283.

E., "National Economy," 300, deals with vinegar.

350.—The *Chou li*, as well as the *Li ki*, mentions an edible grain called 菰 *ku*, which some of the early commentators include in the six or nine kinds of cereals [*v. supra*, 335]. Legge translates *ku* by broad-leaved water-squash.

Li ki, I, 460 ["Diet of the Ancient Chinese"]:—For relishes, snail-juice and a condiment of the broad-leaved water-squash were used with pheasant-soup. I, 461:—The broad-leaved squash was thought to suit fish.

Chou li, I, 94:—Le millet aquatic (*kou*) convient avec le poisson. I, 70:—Commentator C. (Kia Kung-yen) says: In the south they have the 菰米 *ku mi*. It is also called 彫胡 *tiao hu*.

The *Shuo wen* gives as synonyms for *ku*, 彫菰 *tiao ku* and 蔣 *tsiang*. The *Kuang ya* has 菰 *ku* or *tsiang*.

The *Rh ya i* identifies the *ku* with the *ye tiao p'eng* in the *Rh ya*, 15, and states that it is a water-plant whose leaves resemble those of the sugar-cane. In Kiangnan the people

call it 菱草 *kiao ts'ao*. It affords an excellent fodder for horses; it grows in the marshes of 兩浙 (Chekiang). In spring the young stalks are used as food, as well as in autumn the grains. [Comp. also *Rh ya*, 88, 217.]

P. treats of this plant [XXIII, 15] under 菰米 among cereals, and [XIX, 16] under 菰 among water-plants.

The plant here spoken of is the *Hydropyrum latifolium*, Ledeb., a tall grass, still cultivated throughout China for its young stalks, known by the name of 菱白 *kiao pai*, which are eaten as a vegetable. [Comp. Dr. HANCE's notice of the plant in *Journ. Bot.*, 1872, 146.] I am not aware that nowadays the seeds of this plant are gathered in China for food, but I may observe that the grains of an American species of the same genus [the *H. esculentum*] yield a considerable quantity of food to the Indians, wherefore it is also called Canadian Rice.

Figures of the *ku* or *kiao* plant [but only leaves] are given in the *Kiu huang*, LIII, 27, and *Ch.*, XVIII, 13.

SIEBOLD, *Syn. plant. œcon. jap.*, 368, 菰 *Makoma*. Gramineæ. Frumentum pro farina in provinciis septentrionalibus Cosjuu ac Mino cultum.

Phon zo, XXXIII, 21, 22, 菰米. The drawing seems to represent *Hydropyrum latifolium*.

V. supra, 88.

351.—BIOT, in his article on the Manners of the Ancient Chinese according to the *Shi king*, translated by LEGGE, *Shi king*, Proleg, 142–171, writes:—We can tell the principal kinds of cereals mentioned in the *Shi king* and point out the localities where they were cultivated. They were rice, wheat, barley, buck-wheat (sarrasin), two sorts of millet, the *shu* and the *tsi*.

I have not been able to make out what character in the *Shi* BIOT refers to buck-wheat. This grain, now much cultivated in China under the name of 蕎麥 *kiao mai*, seems

to have been unknown to the ancient Chinese. It is not mentioned in the oldest Chinese treatises on husbandry. The name *kiao mai* first appears in the *Ts'i min yao shu* [5th century]. See also the *Nung cheng ts'üan shu*, XXVI, 11.

352.—We read in MENCIUS, 297 :—Of all seeds the best are the five kinds of grain, yet if they be not ripe they are not equal to the 荑 *t'i* and the 稗 *pai*. So the value of benevolence depends entirely on its being brought to maturity.

Regarding these plants, LEGGE translates the following particulars drawn from *P.*, XXIII, 13, *pai*, and other Chinese works :—The *t'i* and the *pai* are two plants closely resembling one another. They are a kind of spurious grain, yielding a rice-like seed, but smaller. They are to be found at all times, in wet situations and dry, and when crushed and roasted may satisfy the hunger in a time of famine. One kind of *pai* is called in the north bird paddy 鳥禾 *niao ho*.

I am not prepared to say to what gramineous plant the *t'i* answers. [Cf. *supra*, *Rh. ya*, 61] where the name is written 蓷. Compare also the Calendar of the Hia [36] :—In the second month panic grass, 稊 *t'i*, is gathered. KUO PO says that the *t'i* resembles the 稗 *pai*. As to the latter name, it is applied at Peking to *Panicum* (*Echinochloa*) *crus galli*, L., a wild-growing plant, which is also cultivated for its grain. This plant has the same Chinese name in Hupei [HENRY, *l.c.*, 335]. LEGGE is mistaken with respect to the name "bird paddy," for the correct reading is 烏禾 *wu ho*, black corn. The ears of *P. crus galli* when ripe are of a blackish colour. [See drawings of the *pai* in the *Kiu huang*, LII, 5 ; *Ch.*, II, 1.]

SIEB., *Syn. plant. œcon. jap.*, 34, 稗 *nora hije*, *Eleusine coracana*, Gaertn. Hinc inde cultum frumentum. But KEMPFER's 稗 *jai* vulgo *jije*, Panicum vulgare paniculâ

minore, semine nigricante [*Amœn. exot.*, 835] may rather refer to *P. crus galli*. The plant represented in the *Phon zo*, XLI, 15, under 旱稗 (*pai* growing in dry grounds) is *P. crus galli*. *Ibidem*, 14, is the 水稗 (water *pai*) likewise a *Panicum*. According to HOFFM. & SCHULTES [407] this Chinese name is applied in Japan to *P. crus corvi*, L.

E., 40, family 稗, figure probably of *Panicum crus galli*.

II.—*Vegetables.*

353.—The classical Chinese name for vegetables in general was 蔬 *su*. [*See* LEGGE's *Shi king*, 548.] In the *Rh ya* (釋器) this term is identified with 菜 *ts'ai* which still to this day is the common name for culinary vegetables. The term *ts'ai* occurs in the *Li ki* and in the *Shi king*, but in the latter only once in the name of an edible water-plant *hing ts'ai* [*c. infra*, 399]. The *Shuo wen* explains *ts'ai* by edible herbaceous plants.

The character 蔬 *shu*, likewise an old term for vegetables, explained in the *Shuo wen* by 菜, is, however, not used in the Chinese Classics in this sense.

There occurs in the *Li ki* a character [芼 *mao*] which CHENG HÜAN explains by *ts'ai* (vegetable), the *Rh ya* (釋言) by 搴 (to pluck). KUO P'O adds :—to pluck up vegetables.

The passage in the *Li ki* 雉兔皆有芼 is translated by LEGGE [I, 461] :—Pheasants and hares were [made into soup] with the duckweed ; and, *ibidem*, the term 芼羹 is rendered [I, 451] by "soup with vegetables."

The same character (*mao*) is found in the *Shi king*. MAO explains it by "to pick out, to select." LEGGE [4] translates it according to the Sung commentaries by "to cook," and says that this meaning is supported from the *Li ki*.

354.—菽 *shu*, also written 叔 and 未, is a collective name for leguminous plants and their seeds, pulse. It is frequently met with in the Classics. The *Kuang ya* says that *shu* denotes especially the 大豆 *ta tou* or soy bean.

Li ki, I, 268 [*Yue ling*] :—First month of summer. The son of Heaven eats beans (*shu*) and fowls. I, 451 :—Beans.

Shi king, 231 ["Life in Pin"] :—In the seventh month they cook the pulse (*shu*), and [232] :—In the ninth and tenth month the pulse (*shu*) is gathered. 334, 365 :—Pulse, beans gathered. 401 :—They gather the beans (*shu*) in their baskets, square and round. 621 :—Hou tsi [*v. supra*, 343] taught the people how to sow pulse (*shu*).

Mencius [389] said :—When pulse (*shu*) and grain (*su*) are abundant as water and fire, how shall the people be other than virtuous?

Ch'un ts'iu, 744 [Duke Ting, first year] :—In winter, in the tenth month, there fell hoar frost, which killed the pulse (*shu*).

Nowadays 豆 *tou* has the same meaning as *shu*, pulse. But in the classical period *tou* was a term to designate a certain wooden vessel or dish for containing flesh sauces at sacrifices and feasts. The *Rh ya* explains 豆 by "wooden vessel." Biot [*Chou li*, I, 109] translates it by "terrines en bois." The meaning of pulse or beans was transferred to this character several centuries after the time of Confucius, as can be concluded from the quotations in *K.D.* The *Shuo wen*, in one place, explains *tou* by "ancient vessels for containing meat," but in another chapter takes it in the sense of *shu* or pulse. Some authors of the Tsin dynasty, in the 3rd or 4th century, began to write 荳 *tou* to designate pulse. *W.D.*, 875, takes this to be the correct form.

The character 萁 *ki* is explained in the *Shuo wen* by 未莖 stalks of pulse. But *ki* has also other meanings. 蕑萁 *hiang ki*, in the *Li ki*, is a sacrificial name for the

Setaria italica. [*V. supra*, 344.] *Ki* is also the name of a certain aquatic plant. [See *W.D.*, 336.]

The character 藿 *ho* is explained in the *Shuo wen* by 未之少也 young plants of pulse. The *I li* Classic, quoted in *K.D.*, says "leaves of beans." MAO explains it by 苗 (young plants).

Shi king, 300:—Let the brilliant white colt feed on the bean sprouts (*ho*) of my vegetable garden.

莢 *kia*, according to the *Shuo wen*, is 艸實 (fruit of herbaceous plants). The *Kuang ya* defines it more precisely as 豆角, horns (pods) of pulse. But *kia* is also applied by the Chinese botanists to the silicles of cruciferous plants and the seed-vessels of the elm.

BIOT [in the *Chou li*, I, 195] is mistaken in translating 莢 by "noyau des fruits." He confounded the character evidently with 核 [*v.* 469].

E., 35–37, family 豆. Figured are:—

大豆 *Jap.*, 1029, the same as the next, but the figure differs.

黃豆苗 *H.*, 467, *Glycine hispida*, Max. *A.*, XV, 146.

綠豆 *C.*, 778, *Phaseolus radiatus*, L. *Jap.*, 1601, *var. subtriloba*. [*Sm.*, 171, 227, differ.]

白豆 Variety of 大豆, also 毛豆 *Pr.*, 46. [*E.*, 36, 11, 白豆=飯豆.]

豌豆 *Jap.*, 1644, *Pisum sativum*, L. *Sm.*, 172, *Pisum arvense*.

野豌豆 *Jap.*, 1234, *Lathyrus maritimus*, Bigel, *var. Thunbergianus*. *H.*, 519, 40, *Millettia*.

蠶豆 *C.*, 1327, *Vicia faba*, L. *A.*, XV, 146.

虹豆 *Jap*, 822, *Dolichos umbellatus*, Thbg. *A.*, XV, 146, *Dol. sinensis*, L., also 豆角.

紫虹豆 Variety of the former.

藊豆 *H.*, 471, *Dolichos lablab*, L. *C.*, 1021.

山藊豆 *Jap.*, 533, *Cassia mimosoides*, L.

刀豆 *Jap.*, 440, *Canavallia ensiformis*, Dl. *C.*, 1256. *A.*, XV, 147. *Pr*, 294, also 水流豆.

黎豆 *Jap.*, 1462, *Mucuna capitata*, Wight & Arn.

山黧豆 *Jap.*, 1235, *Lathyrus palustris*, L., *var. linearifolius*, Ser.

山黑豆 *Jap.*, 832, *Dumasia truncata*, S. & Z.

苦馬豆?

鹿霍 *Jap.*, 1899, *Rhynchosia volubilis*, Lour., also 野扁豆 compare below *Pr.*, 241, and *H.*, 473.

蒡豆?

回回豆?

355.—In the *Shi king* we have the term 荏菽 *jen shu*, which LEGGE translates by "large beans." 468:—HOU TSI planted large beans which grew luxuriantly.

In the *Rh ya* [29] *jen shu* is given as a synonym of 戎菽 *jung shu*. SUN YEN identifies it with the 大豆 *ta tou* or great bean, which latter name seems to appear first in FANG CHENG-CHI's book on husbandry [1st century B.C.] This is the soy bean, *Soja hispida*, Mœnch. [See *P.*, XXIV, 1.] A good drawing of the plant is found in *Ch.*, I, 8. This bean has always been considered by the Chinese as the most important of the cultivated leguminous plants. It is grown in numerous varieties all over the Empire, especially in the north, and is much esteemed for the oil yielded by its seeds. The name great bean refers to the plant, not to the seeds, which are small, of the size of a pea.

The soy bean is also largely cultivated in Japan. It is described and figured under the Chinese name 大豆 in *Amœn. exot.*, 838, and *So moku*, XIII, 18-21.

The soy bean is much employed in China and Japan for preparing the so-called "bean-curd" and the sauce called "*soy*." The first is prepared by macerating the beans in water and milling them together with the water. The liquid pap is filtered. To this fluid is added gypsum, in order to

coagulate the casein, and also chloride of magnesium. The coagulated casein or bean-curd is of a jelly-like appearance. Soy is made by boiling the beans, adding water, salt and wheat, and producing fermentation by yeast.

Bean-curd and soy were most probably known to the Chinese in the classical period, although no distinct mention is made of these condiments in the classical writings. The ancient term 醬 *tsiang*, which LEGGE translates by "sauce," includes, we may suppose, soy. [See *Li ki*, I, 459-461 "Diet of the Ancient Chinese."] CONF. *Anal.*, 96. BIOT translates the *tsiang* mentioned in the *Chou li* by "mets délicats." I, 70 :—Pour les mets délicats on emploie cent vingt objets différents. Compare *P.*, XXV, 26, on the preparation of the *tsiang*. At Peking the common name for soy is **醬油** *tsiang yu* (*tsiang* oil). WILLIAMS [*Dict.*, 764] states that the English word soy is probably derived from **豉油** *shi yu*, in Japanese *si yu*. [I should think rather from **醬油** pronounced *sho yu* in Japanese. *See* HEPBURN's *Dictionary*.] The character 豉 written 枝 in the *Shuo wen* is explained there by **配鹽幽赤也**, made of salt and beans [I cannot understand what the character 幽 here is intended to mean]. See also *P.*, XXV, 2, under **大豆豉**.

As to the bean-curd, **豆腐** *tou fu*, it appears from the quotations in *P.*, XXV, 7, that this term and the mode of making bean-curd are first mentioned in the *Huai nan tsz'* [2nd century B.C.], but it was no doubt much earlier known in China.

356.—The authors of the Han period speak of another kind of pulse, which they call **小豆** *siao tou* (small bean). An early commentator on the *Chou li* [*c. supra*, 335] includes it among the nine kinds of grain. FAN SHENG-CHI, in his book on husbandry [1st century B.C.] gives details regarding its

cultivation. The *Shuo wen* and the *Kuang ya* identify the *siao tou* with the 荅 *ta*.

P., XXIV, 10, gives *ta* as an old name for the 赤小豆 *ch'i siao tou* (red small bean). The *T's'i min yao shu* distinguishes three kinds of the small bean—a red, a green and a white, referring to the colour of the seeds.

According to LOUREIRO, *Flora cochin.*, 530, *siao teu* in South China is the Chinese name for *Phaseolus Mungo*, L. In *Amœn. exot.*, 837, we have 荅 *too*, vulgo *atsuki*. Phaseolus hirsutus lobis foliorum hinc illinc auritis, . . . floribus geminis uni longo petiolo insidentibus, languide luteis . . . siliqua triunciali, angusta, tereti, curva . . . seminibus ciceris magnitudine . . . Semina in farinam redacta quotidianam subeunt pro scriblitis et libis pinsendis crustulariorum manus. A drawing of this plant was subsequently published in BANKS' *Icones Kempferi selectæ*, etc., tab. 40. THUNBERG, *Flora japon*, 279, identifies KEMPFER's *atsuki* with *Phaseolus radiatus*, L. In the *So moku*, XIII, 28, 29, 赤小豆 is a variety of *Ph. radiatus* with red seeds. *Ibidem*, 31, 綠豆 *Ph. radiatus*, variety with green seeds. LOUREIRO, *l. c.*, 529, *Phaseolus radiatus*, L. sinice *lin teu* (*i.e.* 綠豆 *lü tou*, green bean). *Ph. radiatus* is a near ally to *Ph. Mungo*, and these two species have often been confounded by botanists. The seeds of the former may be at once distinguished from the seeds of the green variety of *Ph. Mungo*, by their being covered with long hairs, whilst the seeds of *Ph. Mungo* are glabrous. Besides this the seeds of *Ph. radiatus* are distinguishable by their prominent hilum. In a recently published interesting paper on some leguminous plants cultivated in Russia, Prof. A. BATALIN of the Botanic Gardens, St. Petersburg, proved that the beans cultivated in North China and Manchuria (probably also those of Japan) under the name of *lü tou*, or green beans, all belong to *Ph. Mungo*, not to *Ph. radiatus* as was formerly believed. The *lü tou* is extensively

cultivated all over China, and supplies an important article of food. From the flour of the small green seeds the Chinese prepare their vermicelli.

Other Chinese names of *Leguminosæ* are :—

Jap., 7, *Abrus precatorius*, L., **相志子**. *C.*, 423, **相思豆**.
„ 11, *Acacia Farnesiana*, Willd., **荊毬花**.
„ 67, *Æschinomene indica*, L., **合萌**.
„ 92, *Albizzia Julibrissin*, Boivin, **合歡**.
„ 184, *Apios Fortunei*, Max., **土圞兒, 九羊子**.
„ 198, *Arachis hypogæa*, L., **落花生**.
„ 302, *Astragalus lotoides*, Lam., **紫雲英**. [*Ind. Fl. Sin.*, p. 166, *Astr. sinicus*, L.]
„ 303, *Astragalus reflexistipulus*, Miq., **木黃芪**.
„ 398, *Cæsalpinia pulcherrima*, Swarts, **金鳳花**.
„ 399, *Cæsalpinia Sappan*, L., **蘇方木**.
„ 400, *Cæsalpinia sepiaria*, Roxb., **雲實**.
„ 448, *Caragana Chamlagu*, Lam., **錦鷄兒**.
„ 534, *Cassia Tora*, L., **决明**. [*Pr.*, 216, **狗屎豆**.] F. 56.
„ 559, *Cercis chinensis*, Bge., **紫荊**.
„ 617, *Cladrastis amurensis*, B. & H., *Var. floribunda*, Max., **檾槐**.
„ 747, *Cytisus scoparius*, Lk., **金雀花**.
„ 778, *Desmodium Oldhami*, Oliv., **山蚕豆**.
„ 821, *Dolichos cultratus*, Thbg., **鵲豆**. [*C.*, 718, **料豆** *Dolichos sp.*]
„ 898, *Erythrina crista galli*, L., **梯姑樹**.
„ 900, *Euchresta japonica*, Bth., **山豆根**.
„ 1020, *Gleditschia japonica*, Miq., **皂莢**. *H.*, 499. *E.*, 304. *S.*, VIII, 3. *C.*, 1331. *A.*, XV, 126.
„ 1148, *Indigofera decora*, Ldl., **胡豆**.
„ 1149, *Indigofera tinctoria*, L., **馬蘭**.
„ 1233, *Lathyrus Davidii*, Hce., **泩芒决明**.
„ 1248, *Lespedeza bicolor*, Turcz., **胡枝子**.

Jap., 1253, *Lespedeza sericea*, Miq., 鐵掃箒.

„ 1254, *Lespedeza striata*, Hkr. & Arn., 鶏眼草.

„ 1330, *Lotus corniculatus*, L., *var. japon.*, Regel., 百脈根.

„ 1402, *Medicago denticulata*, Willd., 苜蓿.

„ 1403, *Medicago Lupulina*, L., 天藍.

„ 1415, *Melilotus cærulea*, Lamk., 零陵香.

„ 1440, *Mimosa pudica*, L., 含羞草.

„ 1601, *Phaseolus radiatus*, L., 赤小豆 *var. pendula*, 蟹眼. [*C.*, 141. *Sm.*, 1. *P.*, XXIV, 9.]

„ 1602, *Phaseolus vulgaris*, L., 菜豆.

„ 1792, *Psoralea corylifolia*, L., 骨補脂.

„ 1801, *Pterocarpus flavus*, Lour., 黃柏, 檗木.

„ 1802, *Pterocarpus santalinus*, L. f., 紫檀.

„ 1805, *Pueraria Thunbergiana*, Bth., 葛.

„ 2109, *Sophora angustifolia*, S. & Z., 苦參.

„ 2110, *Sophora japonica*, L., 槐.

„ 2194, *Thermopsis fabacea*, Dl., 野决明.

„ 2236, *Trigonella fœnum-græcum*, L., 胡蘆巴.

„ 2317, *Vicia hirsuta*, Koch., 小巢菜.

„ 2321, *Vicia unijuga*, Al. Br., 歪頭菜.

Pr., 154, *Cajanus indicus*, Spr., 猪屎豆 or 麪豆. *A.*, XV, 97.

B., *Pisum sativum*. 荷蘭豆.

Pr., 241, *Rhynchosia volubilis*, Lour., 假荷蘭豆 or 拈根.

H., 469, *Phaseolus chrysanthus*, Sav. cult., 蠻豆.

H., 470, *Vigna vexillata*, Bth., 野蠻豆.

H., 472, *Dunbarea subrhombia*, Hsl., 野扁豆, also *Cassia occidentalis*, L., [*Pr.* 262].

H., 473, *Amphicarpæa Edgworthii*, Bth., & *Rhynchosia volubilis* [*v. Jap.*, 1899] 野毛扁豆.

H., 500, *Gymnocladus chinensis*, Baill, 肉(肥)皂莢. *C.*, 298.

A., XV, 146, *Phaseolus Mungo*, L., 小豆.

C., 1104, *Cajanus indicus*, Spr., 山豆根. *A.*, XV, 147, *Cajanus flavus*, Dl.

357.—葱 *ts'ung*. According to *W.D.*, 1024, this is a general term for alliaceous plants with fistular leaves; onions, garlics; a leek green. But ancient as well as modern Chinese authors apply the above character, which may be translated by "onion," to a distinct species of *Allium*, never to garlic, for which the Chinese have a peculiar name.

The *ts'ung* in North China is *Allium fistulosum*, L., a native of Siberia, Dauria, Northern Mongolia. It is largely cultivated at Peking. This species is remarkable for its never forming a globular bulb, like our common *Allium Cepa*. A good drawing of the plant is found in *Ch.*, III, 32. In Japan likewise the character 葱 is applied to *A. fistulosum*. [See *So moku*, VI, 31.] According to Loureiro, *Flora cochin.*, 249, the *tsum* (*ts'ung*) largely cultivated in Cochinchina and Southern China, is the common onion, *A. cepa*. This is most probably of foreign origin. *P.*, XXVI, 9, 14, mentions, besides the common *ts'ung*, of which there are several varieties, the winter *ts'ung*, the spring *ts'ung*, the violet *ts'ung*, etc,—the 胡葱 *hu ts'ung*, or foreign onion, termed also 回回葱 *hui hui ts'ung* or Mohammedan onion. The drawing of this plant given in the *T'u shu tsi ch'eng* [LVI] represents an onion with a globular bulb.

The *ts'ung* of the Chinese Classics is, I believe, *A. fistulosum*. The *Rh ya* does not mention the cultivated *ts'ung*, but notices the *shan ts'ung* or mountain onion [*c. supra*, 2]. In another section of the *Rh ya* the character *ts'ung* is explained by green colour, and in this sense it is understood in the *Shi king* [286].

The *Li ki* speaks repeatedly of the *ts'ung* as an article of food. I, 79:—Steamed onions. 462:—Mince with onions, onions with lard. 463:—Onions and scallions mixed with brine.[13]

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[13] *Li ki*, I, 461, 462:—Vegetables eaten by the ancient Chinese [Legge's translation]. My remarks in brackets.

The *Shuo wen* defines the character *ts'ung* by *ts'ai*, vegetable.

V. supra, 1–4.

358.—Garlic, *Allium sativum*, L., in Chinese 蒜 *suan*, is also known to the Chinese from a very early period. It is mentioned as a vegetable in the Calendar of the Hia [121]:—In the 12th month they gather the *suan*, the bulbs of which resemble testicles, 卵 *luan*.

The *Rh ya* [4] mentions a wild kind of garlic, which is also called *li*. The *Shuo wen* explains the character *suan* by 葷菜 (strong smelling vegetable).

The *Rh ya cheng i* relates the following tradition:—It once happened, when the Emperor Huang ti was ascending the mountain 葛山 *Li shan* [see *Botan. sin.*, I, p. 26, 27] that [some of his followers] were poisoned by the plant 蒟芋 *yu yü* (probably an *Aroideæ*), but by eating the *suan* plant, which was likewise found there, they were saved. Since that time the *suan* is cultivated in China as a vegetable. It has the property of destroying the noxious effect of putrid meat and fish.

A good drawing of the Garlic plant *suan* is found in *Ch.*, III, 71. *Amœn. exot.*, 831, 蒜 *san*, vulgo *jir* and *ninniku*. Porrum commune capitatum. According to Franchet, *Ningiku* is *A. scorodoprasum*, which plant appears in the *So moku*, VI, 30, under the Chinese name of 葫.

Siebold [*Syn. plant. æcon. jap.*, 90] gives 大蒜 (great *suan*) as the Chinese name for garlic in Japan.

The ancient Chinese authors quoted in *P.*, XXVI, 18, distinguish the 小蒜 *siao suan*, small garlic, which is said to be that commonly cultivated in China, from the 大蒜 *ta*

Onions (葱)—scallions [韭 *Allium odorum*, *v. infra*, 359], chives [薤, *v. infra*, 360]—mustard [芥, *v. infra*, 362]—lichens [芝 mushrooms, *v. infra*, 380].

Of spices there are mentioned:—ginger [薑, *v. infra*, 381]—cinnamon [桂, *v. infra*, 552]—pepper [藙 *Zanthoxylon* or *Evodia*, *v. infra*, 498]—smart weed [蓼 *Polygonum hydropiper*, *v. infra*, 366].

suan, or great garlic, known also by the names 胡蒜 *hu suan*, foreign garlic, and 葫 *hu*. The *Po wu chi* [3rd century] states that this latter was introduced into China from the West by the famous general CHANG K'IEN, in the 2nd century B.C. The *Allium scorodoprasum*, L., or *Rocambole*, to which the *So moku* refers the *hu*, is a species allied to the common garlic.

359.—The 韭 *kiu*, mentioned in the Classics as a culinary vegetable, is the *Allium odorum*, L., (*A. uliginosum*, G. Don., *A. tuberosum*, Roxb., *A. senescens*, Miq., are the same), *W.D.*, 414, calls the *kiu* erroneously *A. setaceum*. *A. odorum* is a native of *Siberia*, Mongolia and the whole of China, it seems. It is a common plant in the Peking mountains, and is also much cultivated in Chinese gardens. The Chinese eat the whole plant, especially when in flower in August.

P., XXVI, 1. Figured in *Ch.*, III, 64.

Amœn. exot., 831, 韭 *kiu*, vulgo *miira niira*. Porrum sectivum minus, junci folio. *So moku*, VI, 43, same Chinese name, *Allium odorum*.

The *Rh ya* [1] mentions the wild *kiu*, otherwise called *yü*. The *Shuo wen* says that *kiu* is the name of a vegetable.

LEGGE translates *kiu* in the Chinese Classics by "scallions."

Li ki, I, 117 :—According to the rules for the sacrifices in the ancestral temple scallions (*kiu*) are called 豐本 *feng pen* (the rich root). I, 226 :—In sacrificing at the altars to the spirits of the land and grain, the common people in the spring presented scallions (*kiu*).

Calendar of the Hia, 7 :—In the enclosed gardens are seen the leeks (*kiu*).

Chou li, I, 109 :—Food prepared for the Son of Heaven and offered in sacrifices. BIOT erroneously translates 韭菹

by "ail mariné." I, 111, the *kiu* was one of the seven vegetable pickles [*v.* 376, note].

Shi king, 232 ["Life in Pin"] :—They offered in sacrifice a lamb with scallions (*kiu*).

The *kiu* is repeatedly mentioned in the *Shan hai king*.

360.—A fourth species of *Allium* is mentioned in the Classics under the name of 薤 *hiai*. According to *W. D.*, 188, it is the shallot or scallion, *Allium ascalonicum*. LEGGE translates *hiai* by chives or scallions.

Li ki, I, 462 ["Diet of the Ancient Chinese"] :—With fat they used chives (*hiai*). I 463 :—Onions and scallions (*hiai*) were mixed with the brine.

The *hiai* is repeatedly mentioned in the *Shan hai king*. The *Rh ya* writes the character *hiai* 薤, and, besides the cultivated plant [63] mentions [3] the mountain *hiai*, otherwise called *king*.

The *Shuo wen* says the *hiai* is a vegetable ; its leaves resemble those of the *kiu*.

P., XXVI, 15. Drawing, *Ch.*, III, 35.

Amœn. exot., 831, 薤 *kei* vulgo *oō nira*. Porrum sectivum latifolium. *So moku*, VI, 37, same Chinese name, *Allium Bakeri*, Rgl. This species has been observed in a wild state in Japan and Middle China.

The Chinese plant *hiai* is unknown to me. It is not cultivated in the neighborhood of Peking.

Jap., 98, *Allium Bakeri*, Reg., 薤.
" 99, " *esculentum*, L., 冬葱.
" 100, " *fistulosum*, L., 葱.
" 101, " *japonicum*, Reg., 山韭.
" 102, " *Ledebourianum*, Schult., 孝文韭.
" 104, " *nipponicum*, Tr. & S., 山蒜.
" 105, " *odorum*, L , 韭.
" 106, " *porrum*, L., 洋葱.

Jap., 108, *Allium scorodoprasum*, L., 葫.

„ 110, „ *victoriale*, L., 茖葱.

361.—There is a vegetable [葑 *feng*] repeatedly mentioned in the *Shi king*. LEGGE thinks that it is a *Brassica* or mustard plant. *W.D.*, 157, *Cruciferæ*, allied to the mustard. LEGGE observes that in the Japanese plates the *feng* is a sorrel, *Rumex persicaroides*. It has an edible root.

Shi king, 55 :—When we gather the mustard plant *(feng)* and earth melons [*v. infra*, 363] we do not reject them because of their roots. 79 :—I am going to gather the mustard plant in the east of Mei 沫 (in the north of Honan). 188 :—Gather the mustard plant *(feng)*.

MAO says the *feng* is the same as 須 *sü*, which latter, in the *Rh ya*, is referred to two different plants. *Rh ya*, 83, we have 龍天薷 *lung t'ien yo*, synonym 須葑蓯 *sü feng tsung*, obscure names not explained by the commentators; and [105] 須 *sü*, synonym 蓀蕪 *sun wu*.

The ancient commentators, as quoted in *P.*, XXVI, 36, refer the above names of the *Rh ya* [83 and 105] both to the *feng* of the *Shi king*, which they identify with 蕪菁 *wu tsing* or 蔓菁 *man tsing*, names nowadays applied to the rape turnip, *Brassica rapa*, L. Other ancient authors say that the *sü* or *sun wu* [*Rh ya*, 105] is the 莫 *mo* of the *Shi king*, a sorrel, *Rumex* [*v. infra*, 441].

The *Fang yen* [1st century B.C.] writes the name *feng* 蘴. It is there stated that this name is applied to the plant in 陳 Ch'en (Honan) and in 楚 Ch'u (Hupei, Hunan), whilst in 魯 Lu and in 齊 T'si (both in Shantung) it is termed 蕘 *jao*. East and West of the (T'ung kuan) Pass (in Southern Shansi and Shensi) it is called 蕪菁 *wu tsing*; in 趙 Chao and 魏 Wei (Chili and Northern Shansi) the people call it 大芥 *ta kiai* (great mustard plant).

LU KI explains 葑 *feng* by *wu tsing* and adds that in 幽州 Yu chou (Northern Chili) it is called 芥 *kiai*.

Li Shi-chen in *P.* [*l. c.*] states that the *wu tsing*, a vegetable with yellow flowers, is called *man tsing* in the north of China.

W.D., 1040, says that the *man tsing* is a kind of round turnip, whose tuber is above ground and green coloured, common at Peking; a second sort, the 芥蔓菁 *kiai man tsing* has its white tuber under ground. I may observe that Williams' turnip with the tuber above ground is not what the people at Peking call *man tsing*. W. means the cabbage-turnip, Kohl-rabi, *Brassica oleracea caulorapa*, with a round fleshy swelling of the stem near the ground, which is much cultivated in North China. Its popular name is *pie la*. This is, it seems, the plant meant in the figure [*Ch.*, IV, 24] under 甘藍 *kan lan* or 茎藍 *p'ei lan*. The *wu tsing* or *man tsing* is represented *Ch.*, III, 60. This is, as I have already stated, the rape, *Brassica rapa*, L. It is not grown to a great extent at Peking. d'Incarville, in his list of Peking plants, calls the *man tsing* "navet" (turnip). By *kiai man tsing* or mustard rape, Williams means probably a mustard plant with large fleshy roots, of which I shall speak farther on.

Amœn. exot., 822, 蕪菁 *busei* vulgo *uona*. Rapum sativum rotundum. *Idem* radice longa. Under the same Chinese name, in Siebold's *Syn. plant. œcon. jap.* [278] *Brassica rapa*, Japonice *kabna*. Copiose colitur.

In the *Chou li* [I, 109] where the provisions of the table of the Son of Heaven are detailed, pickled 菁 *tsing* is mentioned. Cheng Sz'-nung explains it by *man tsing*, and Biot translates "marinades de grande moutarde." The *tsing* was one of the seven vegetable pickles [*v.* 376, note].

V. supra, 105.

Jap., 373, *Brassica campestris*, L., 蕪菁.

" 374, " *chinensis*, L., 蔓菁.

" 375, " *oleracea*, L., 甘藍.

362.—芥 *kiai* (*kie*) is a name which the Chinese nowadays apply to mustard and the mustard plant. At Peking they cultivate under this name several varieties of *Sinapis juncea*, L., the typical form of which yields the well-known Russian mustard produced at Sarepta.

One of these varieties is grown for its seeds, which are used as in Europe; another for its leaves, eaten boiled or as a salad; a third variety, hitherto unknown to our botanists, which I introduced into Europe some years ago, is cultivated for its large turnip-shaped roots, which are pickled and largely used as food. This is called 大芥 *ta kiai* (large mustard).

Li ki, I, 459, 460 ["Diet of the Ancient Chinese"]:—Mustard sauce (芥醬) with minced fish. I, 461:—Mince in autumn was made with the mustard plant (it is not said whether the seeds, the leaves or the roots were employed).

Mencius, 190, 194:—The character *kiai* (mustard) used as a synonym for 草 (plant).

The *Fang yen* seems to confound the mustard plant with the turnip, for it is there stated (see the passage quoted in 361) that the *feng* in Chao and Wei is called *ta kiai* (great mustard). A smaller variety of it was known by the name 辛芥 *sin kiai* (pungent mustard) or 幽芥 *yu kiai* (mustard from Yu chou or Northern Chili). This latter was probably *Sinapis juncea* grown for its seeds.

Comp. *P.*, XXVI, 31, 33, *Ch.*, III, 52, 54.

So moku XII, 38, 芥 *Sinapis cernua*, Thbg., *Ibidem*, 39, 大芥 *S. integrifolia*, Willd., 41, 花芥 *S. japonica*, Thbg. See also the *Phon zo*, XLVI, 9-12.

E., 60, family 芥. Figure bad, a copy of *S.*, X, 7.

C., 96, *Brassica (Sinapis) cernua*, Thbg. *A.*, XV, 137, 芥藍菜 *Brassica chinensis*, L., called at Peking 白菜.

Jap., 2085, *Sinapis cernua*, Thbg., 芥.

„ 2086, „ *chinensis*, L., 水菜.

„ 2087, „ *integrifolia*, Willd., 大芥.

363.—The character 菲 *fei* occurs only once in the *Shi king* and together with *feng* [*v.* 361]. LEGGE calls it the earth melon.

Shi king, 55:—When we gather the mustard plant *(feng)* and the earth melons *(fei)* we do not reject them because of their roots.

CHU HI explains:—The leaves, stalks and root of the *feng* and *fei* are all edible; and if sometimes the root or lower part be bad, yet the whole plant is not on that account thrown away.

In the CONF. *Anal.* [79] we have the phrase 非食飲, which means coarse food and drink.

In the *Rh ya*, the character *fei* is referred to two different plants. In 50 it is identified with 芴 *wu*. KUO P'O says that this is the 土瓜 *t'u kua* which latter term LEGGE translates by "earth melon;" but *kua* is a general name for the fruits of cucurbitaceous plants and may as well be translated by gourd. In *P.*, *t'u kua* is given as one of the names for *Thladiantha dubia*, Bge., [*v. infra*, 386]. The same character [*fei*] in the *Rh ya* [106] is identified with 蕵菜 *si ts'ai*, regarding which KUO P'O says that it is an edible plant, growing in marshy places and resembling the *wu tsing* (turnip), but it has violet flowers.

MAO identifies the *fei* of the *Shi king* with *wu* in the *Rh ya* [50].

LU KI says:—The *fei* resembles the 蒿 *hao* [*v. infra*, 442, *Calystegia?*]. It has a coarse stem, thick, long leaves covered with hairs. The people eat it (not said what part of the plant) steamed; it is of an agreeable, sweet taste. In 幽州 Yu chou (Northern Chili) they call it *wu*. In the *Rh ya* it is *si ts'ai*. In 河內 Ho nei (Southern Shansi) it is known by the name of 宿菜 *su ts'ai*.

The *fei* is not spoken of in the *Pen ts'ao*. From the above vague accounts given by the ancient authors regarding this

plant, it is impossible to guess what it was. WILLIAMS [*Dict.*, 138] is of opinion that it is a cruciferous plant, perhaps *Crambe tartarica* (a quite arbitrary identification). LEGGE has no doubt that the *fei* was a kind of radish.

E., 104, family 非, without figure [*v. supra*, 50].

364.—As has been already noticed [*v.* 346] the character 苤 *k'i*, which is met with thrice in the *Shi king*, and which LEGGE translates invariably by "white millet," has, according to MAO's interpretation, three different meanings in the *Shi*. In the passage p. 284 he makes it to mean a vegetable [*v. supra*, 24].

LU KI says:—The *k'i* is a vegetable which resembles the 苦菜 *k'u ts'ai* [*see* 365, *Sonchus* or *Lactuca*]. Its stalk is of a pale green colour. The leaves are succulent, contain a white milky juice, are edible both raw and cooked. The name *k'i* for this plant is usual in 青州 Ts'ing chou (Southern Shantung). The best is found in 西河 Si ho and 雁門 Yen men. The people there (土人, natives; but another reading has 胡人, foreigners) are very fond of it and do not allow its being exported beyond the frontier.

In *P.*, XXVII, 17. the *k'i* is identified with the 白苣 *pai kü*, a kind of lettuce.

The *Pen ts'ao* gives *k'i* also as a synonym for *ti huang*, *Rehmannia glutinosa* [*v. supra*, 180].

365.—荼 *t'u*. The Chinese commentators of the Classics agree that this character in the *Shi* is applied to several distinct plants. More generally it denotes, as LEGGE correctly states, the sow-thistle, *Sonchus*. Several species of wild-growing *Lactuca* also go under this name.

Compare *supra*, page 33, where *t'u* is given as a synonym for 苦菜 *k'u ts'ai* (bitter vegetable).

Shi king, 56:—Who says that the sow-thistle (*t'u*) is bitter? It is as sweet as the shepherd's purse [*tsi*, *v.* 367].

188 :—Would you gather the sow-thistle (*t'u*) at the foot of Shou yang? 231 ["Life in Pin"] :—7th month. They gather the sow-thistle (*t'u*). 438 :—The sow-thistle (*t'u*) is as sweet as a dumpling. In 525 we have the term 荼毒 *t'u tu*, here meaning figuratively "bitter and poisonous." CHU HI says :—The *t'u* is a bitter vegetable, whose taste is bitter and its juice acrid and injurious to life, hence it is called *t'u tu*.

MAO explains *t'u* in the above passages by *k'u ts'ai*, as in the *Rh ya*.

LU KI :—The *t'u* or *k'u ts'ai* grows in mountain fields and marshes. After hoar frost the plant becomes sweet, soft and pleasant, which explains the sentence in the *Shi* "the *t'u* is as sweet as a dumpling." In the chapter *Nei tsz'* of the *Li ki* it is said that sucking-pig was stewed and wrapped up in the leaves of the *k'u ts'ai*.

The passage referred to by LU KI is found in the *Li ki* [I, 460]. The Chinese text has only 苦, the commentators say 苦菜 is meant, and K'UNG YING-TA explains that the *Sonchus* leaves drive away the bad smell.

Li ki, I, 268, [*Yue ling*] :—First month of summer. The sow-thistle (*k'u ts'ai*) is in seed.

Chou li, II, 509 :—Blancheur du jus de la plante *tou* (荼).

Calendar of the Hia [57] :—4th month. Collected are the sow-thistles (*t'u*) ; [89] :—7th month. Luxuriant are the sow-thistles.

In the *Shi king* [146] *t'u* means flowering rushes. LEGGE translates :—The girls were like flowering rushes (*t'u*). MAO explains here *t'u* by 荧荼 (unknown to me,—the first character denotes a water-plant, *Euryale ferox*). CHENG HÜAN explains it by 茅秀 (flowering *mao* grass) [*v. infra*, 460]. *T'u* has the same meaning in the *Shi* [p. 234], where MAO explains it by 萑苻, which latter term is referred by K'UNG YING-TA to the *Rh ya* [214] (rushes). 苻 stands for 芣, see the *Rh ya* [209, 210].

T'u has the same meaning in the *Chou li* [I, 381]. Le préposé à la plante *tou* (茶) est chargé de réunir dans leur saison les plantes *tou*, pour les employer dans les cérémonies funèbres. CHENG HÜAN here explains *t'u* by 茅秀, (flowering rushes) as above. BIOT reads *mao jou* and identifies it with *Sonchus*.

Finally, the character *t'u* appears in the *Shi king* [604] coupled with *liao*, 荼蓼, which MAO explains by 水草 (water-plant), and LEGGE renders by "smart weed," *Polygonum persicaria*. CHU HI observes that *t'u* and *liao* are the same plant, called *t'u* in the dry soil, *liao* in the wet, and not to be confounded with the *t'u* or *k'u ts'ai* (sow-thistle).

See regarding the *k'u ts'ai* or *t'u*, *P.*, XXVII, 14. The plant figured under these names in *Ch.*, III, 15, seems to be *Lactuca versicolor*, Sch. Bip. HENRY [*l. c.*, 189]:—*k'u ts'ai* in Hupei is *Lactuca squarrosa*, Miq.

SIEBOLD [*Syn. plant oreon. jap.*, 219]:—苦菜 *kesi asami*, *Sonchus oleraceus*, L., Herba edulis. The same, *So moku*, XV, 6.

366.—*Liao* is a general term for the genus *Polygonum*, of which there are in China a great number of species. Some of them have different Chinese names. [*See* HENRY, *l. c.*, 239.] LEGGE renders *liao* by "smart weed," *Polygonum persicaria*. The character *liao* appears twice in the *Shi king*. In 600 it is used in the sense of "bitter experience," and in 604 it is coupled with *t'u* [see 365].

MAO explains *liao* by "water-plant," CHENG HÜAN by 辛苦之菜 (pungent and bitter vegetable). [See also the *Rh ya*, 65].

Li ki, I, 460, 461 ["Diet of the Ancient Chinese"]:—The *liao* mentioned as a spice: a sucking-pig was stewed, wrapped up in *Sonchus* leaves and stuffed with smart-weed.

P., XVI, 76, *liao*. The drawing under *liao*, *Ch.*, XI, 57, seems to represent *Polygonum hydropiper*, L., which may well have been the plant of the *Shi*.

Amœn. exot., 891, 蓼 *rio*, vulgo *tade*. Persicaria vulgaris acris. Hydropiper, cujus folia indigenis pro pipere serviunt.

So moku, VII, 57, 蓼 or 辣蓼 (pungent *liao*) *Polygonum hydropiper*. *Ibidem*, 63, 馬蓼 (horse's *Polygonum*) *P. persicaria*, L. Comp. also *Ch.*, XI, 59.

E., 58, *v. supra*, 102.

S., VII, 3; *Sm.*, 198. *A.*, XV, 169.

Jap., 1686, *Polygonum aviculare*, L., 萹蓄.

„ 1687, „ *Bistorta*, L., 拳參.

„ 1688, „ *Blumei*, Meisn., 馬蓼.

„ 1690, „ *chinense*, L., 赤地利.

„ 1692, „ *cuspidatum*, S. & Z., 虎杖.

„ 1694, „ *filiforme*, 金線草.

„ 1695, „ *flaccidum*, Roxb, 水蓼.

„ 1698, „ *lapathifolium*; Ait., *var. incanum*, Led., 毛蓼.

„ 1701, *Polygonum multiflorum*, Thbg., 何首烏.

„ 1704, „ *orientale*, L., *var. pilosum*, Meisn., 荭草.

„ 1705, „ *perfoliatum*, L., 杠板歸.

„ 1713, „ *strigosum*, R. Br., 雀翹.

„ 1716, „ *Thunbergii*, S. & Z., *var. hastato-trilobum*, Fr. & S., 苦蕎麥.

„ 1717, *Polygonum tinctorium*, Lour., 藍.

„ 1873, *Rheum undulatum*, L., 大黃.

367.—The 薺 *tsi* plant mentioned once in the *Shi king*, has been correctly identified by LEGGE with the "shepherd's purse," *Capsella bursa pastoris*, Mœnch. Page 56:—The sow-thistle is as sweet as the shepherd's purse. It is a common plant in China, and still much used as a pot-herb. See the *Rh ya*, 103 and 18. In *P.*, XXVII, 4, it is described as an herbaceous, edible plant with white flowers. The fruit a silicle (莢) resembling the 萍 *ping* (duckweed, *Lemna*) three cornered, containing small seeds. Under the above Chinese names the plant is figured in the *Kiu huang* [LIX, 27] and in *Ch.* [III, 46].

Amœn. exot., 897, 蕣 *sei* vulgo *nadsuna*. *Bursa pastoris* major, folio sinuato, C. Bauh, P. *See also* SIEBOLD, *Syn. plant œcon. jap.*, 284, *Capsella b. past.*, same Chinese name. Japonice *natsna*; Herba edulis. *So moku*, XII, 2.

E., 60, family 蕣, with figure of *Capsella*.
S., X, 41. *Jap.*, 444.

368.—葵 *K'ui*. This plant is mentioned in the *Shi king*, 231 ["Life in Pin"]:—In the seventh month they cook the *k'ui*. LEGGE, *l. c.*:—CHU HI simply says that *k'ui* is a vegetable. One name of it is 蓾葵 *chung k'ui* which MEDHURST says is *Alsine* or *Pimpernel*.

Chou li, I, 110:—Food prepared for the Son of Heaven, or offered in sacrifices. Les terrines de l'offrande des aliments sont remplies avec des mauves (*kui*) confites, etc. I, 111, CHENG HUAN explains that *k'ui* was one of the 七菹 (seven vegetable pickles) [*v. infra*, 376, note].

K'ui is a general name for certain malvaceous plants, *Malva*, *Althæa*, *Hibiscus*, etc. The *k'ui* mentioned in the *Shi king* and *Chou li* is probably the *Malva verticillata*, L., a common plant throughout China. It possesses an abundance of mucilage, and the Chinese use it as a pot-herb.

P., XVI, 22:—*K'ui*, also 冬葵 *tung k'ui* (winter-mallow) and 滑菜 *hua ts'ai* (mucilaginous vegetable). The plant figured under these names in *Ch.*, III, 1, is *M. verticillata*. See also the *Kin huang*, LVIII, 32, and HENRY, *l. c.*, 156.

Amœn. exot., 858:—葵 *Ki*, vulgo *aroi*, in specie *kara aroi* dicta. Malva hortensis sive rosea, vulgo *Malva arborescens*. THUNBERG *Flora japon.* [271] refers KÆMPFER's names to *Malva mauritiana*, L.

So moku, XII, 56:—冬葵 *Malva pulchella*, Bernh.

As to the *chung k'ui*, erroneously identified by CHU HI with the *k'ui*, this is mentioned in the *Rh ya* [148], perhaps *Basella*,

V. supra, 76, 115, 136, 148. *Jap.*, 1392, *Malva pulchella* (= *M. verticillata*, L.) 冬葵, *Jap.*, 1394, *M. sylvestris*, L., 錦葵. *V.* next number.

369.—蕎 *K'iao*, a plant once mentioned in the *Shi king*. LEGGE says:—This is, according to MEDHURST, the "thorny mallow," which is a translation of the Chinese synonym 荊葵 *king k'ui*. In the Japanese plates it is a hollyhock.

Shi king, 207:—A gentleman of a party addresses a lady: "I look on you as the flower of the thorny mallow (*k'iao*)."

Rh ya, 76, where *p'i fou* is given as a synonym for *k'iao*.

LU KI:—The *k'iao* is also called 芘芣 *p'i fou* and 荊葵 *king k'ui*.

The plant resembles the *wu tsing* (turnip) [*v. supra*, 361], is edible and slightly bitter. Its flowers are greenish violet.

This plant is, according to *K.K.F.P.*, XLVI, 23, the same as the 錦葵 *kin k'ui* or *Malva sylvestris*, L., also a common plant in North China. Good drawings of it in *Ch.*, III, 6, and the *So moku*, XII, 57, under the above Chinese name.

MEDHURST and LEGGE are mistaken in translating *king k'ui* by "thorny mallow." 荊 *king* is the name of a plant (*Vitex*) but its original meaning is that of one of the nine ancient divisions of China (Hunan and Hupei), and in this sense the *king* is here to be taken. *Malva sylvestris* has no thorns. WILLIAMS [*Dict.*, 374] commits a double error in defining *k'iao* as a thorny kind of sun-flower.

Jap., 93, 124, *Alcea* (*Althæa*) *rosea*, L. (Cav.) 蜀葵.
" 1043, *Gossypium indicum*, Lam., 草綿.
" 1085, *Hibiscus Hamabo*, S. & Z., 黃槿.
" 1086, " *Manihot*, L., 黃蜀葵.
" 1087, " *mutabilis*, L., 木芙蓉.
" 1088, " *rosa-sinensis*, L., 扶桑.
" 1089, " *syriacus*, L., 木槿 [*v. supra*, 6, 136].
" 1090, " *ternatus*, Cav., 野西瓜苗.

370.—芹 *K'in.* LEGGE says:—Cress, so figured in the Japanese plates. The term is now applied to cress, parsley, celery.

Shi king, 402:—Right up bubbles the water from the spring and they gather the cress (*k'in*) about it. 616:—The college, surrounded with a canal and sown with cress (*k'in*) and other water-plants [*v. infra*, 398, 401].

Chou li, I, 110:—Provisions for the table of the Son of Heaven and offered in sacrifice. Les terrines supplémentaires sont remplies avec des plantes confites de l'espèce *khin* (芹). I, 111:—*k'in* was one of the seven vegetable pickles [see 376, note].

Rh ya, 116:—The *k'in* is also called 楚葵 *ch'u k'ui*.

What the Chinese cultivate at Peking under the name of *k'in* or *k'in ts'ai*, also 旱芹 *han k'in* (*k'in* cultivated in dry soil) is the common celery, *Apium graveolens*, L. *Ch.*, III, 40, verso:—The character *k'in* is written in various ways in Chinese works, viz., 芹, 勤 and 蘄.

The 水芹 *shui k'in* (water *k'in*) is another umbelliferous plant. *P.*, XXVI, 58, *Ch.*, III, 40, *Kin huang*, LVIII, 37.

According to LOUREIRO, [*Flora, cochin.*, 223] *suei kin* (*shui k'in*) in Southern China is *Sium sisarum*, L. A pot-herb cultivated in water. HENRY, *l. c.*, 67:—*Shui k'in ts'ai* in Hupei is *Œnanthe stolonifera*, DC.

Amœn. exot., 825:—芹 *Kin* vulgo *Seri* Petroselinum folio Alsines, Morsus Gallinæ dictæ. THUNBERG, [*Flora, jap.*, 120] refers KÆMPFER'S *seri* to *Apium petroselinum*. SIEBOLD, *Syn. plant. æcon. jap.*, 246:—芹 *Apium seri*. *So moku* V, 19:—水蘄 *Œnanthe stolonifera*. In Japanese *seri*.

V. 38, 116. *Jap.*, 1505, *Œnanthe stolonifera*, DC., 水蘄.

Other Umbelliferæ are mentioned:—

Jap., 391, *Bupleurum falcatum*, L., 北柴胡.
" 394, " *sachalinense*, Fr. Schm., 南柴胡.
" 539, *Caucalis* [*v. supra*, 91].

Jap., 565, *Chamæle tenera*, Miq., 竹菜.
„ 656, *Conioselinum univittatum*, Turcz., 鶏胥.
„ 675, *Coriandrum sativum*, L., 胡菜.
„ 762, *Daucus carota*, L., 胡蘿蔔.
„ 964, *Fæniculum vulgare*, Gærtn., 茴香.
„ 1114, *Hydrocotyle sibthorpioides*, Lamk., 石胡菜.
„ 1264, *Ligusticum acutilobum*, S. & Z., 當歸.
„ 1500, *Nothosmyrnium japonicum*. [*V. supra*, 413.]
„ 1533, *Osmorrhiza japonica*, S. & Z., 野胡蘿蔔.
„ 1595, *Peucedanum japonicum*, Thbg., 防葵.
„ 1635, *Pimpinella sinica*, Hce., 苦爹菜.
„ 1987, *Sanicula europæa*, L., 變豆菜.
„ 2052, *Selinum japonicum*, Miq., 蛇牀子.
„ 2075, *Sesili Libanotis*. [*V. infra*, 434.]
„ 2083, *Siler divaricatum*, Bth. & H., 防風.

371.—菫 *Kin*. LEGGE translates this character correctly by violet. It is mentioned in the *Shi king* and in the *Li ki*, in the latter together with the 蒢 *huan* which LEGGE calls "the large-leaved violet."

Shi king, 438 :—The plain of Chou looked beautiful and rich with its violets (*k'in*) and sow-thistles as sweet as dumplings.

Rh ya, 134 :—*Kin* plant. KUO P'O identifies it with the 烏頭 *wu t'ou* or crow's head. See also the *Rh ya*, 128. MAO says only that *kin* is a vegetable : the *Shuo wen* states that the root of the *kin* resembles that of the *tsi* (shepherd's purse) and the leaves those of the willow. It is eaten cooked and is of a sweet taste.

Hia Calendar, 29 :—DOUGLAS translates here *kin* erroneously by Ixora.

Li ki, I, 451 :—The ordinary or large-leaved violets (*kin* and *huan*) mentioned as vegetables. CHENG HÜAN says :—The *huan* is a kind of *kin*. In winter they used to eat the *kin*, in summer the *huan*.

P., XXVI, 59, *kin*. *Ch.*, XII, 9, *kin kin ts'ai*, a *viola* figured. See also the *Kiu huang*, XLVIII, 26.

Amœn. exot., 875, 堇菜 *kin sai* vulgo *sumire*. Jacea tricolor, sive flos Trinitatis (*Viola tricolor*). Under the same Chinese name, *So moku*, XVII, 61 :—*Viola japonica*, LANGSD. *Ibidem*, 58 :—菫 *V. pycnophylla*, FRANCH.

The name 紫堇 *tsz' kin* (violet or purple *kin*) in the *So moku* [XIII, 2] is applied to *Corydalis incisa*, Pers. [Comp. *Ch.*, III, 43 ; *P.*, XXVI, 60.]

Jap., 684, *Corydalis incisa*, Pers., 紫堇.
„ 687, „ *Wilfordi*, Reg., 黃堇.
„ 2356, *Viola sylvestris*, Kit., *var. grypoceras*, A. Gray, 堇菜.
„ 2353, „ *pinnata*, L., *var. charophylloides*, Regel., 胡堇菜.
„ 2359, *Viola vaginata*, Max., 菫. Comp., *Jap.*, 2351, *Viola Patrinii*, DC., *Var. chinensis*, Ging., 紫花地丁.

372.—苹 *P'ing*. LEGGE makes it to be a kind of celery. WILLIAMS [*Dict.*, 702] thinks that it is a species of succulent cress ; but we are not told whereupon these identifications are founded.

Shi king, 245 :—With pleasant sounds the deer call to one another, eating the celery (*p'ing*) of the fields.

MAO refers the *p'ing* to the 萍 *p'ing* in the *Rh ya* [113], which is duckweed, whilst CHENG HÜAN makes it the same as the 苹 *p'ing* or 藾蕭 *lai siao* [*Rh ya*, 119], which may be an *Artemisia*.

LU KI :—The leaf of the *p'ing* is green and white (LEGGE understands white inside) ; the stalk is like a chopstick (LEGGE translates "like a quill.")

The plant is fragrant and may be eaten both raw and cooked.

Hia Calendar [81] :—Seventh month. In the low pools grows the *p'ing* plant. [84] :—The *p'ing* flourishes.

[See also *infra*, 375, at the end.]

373.—筍 *Sün (sun)*. The shoots or sprouts of bamboo. The character is also written 笋.

Shi king, 548 :—The *sün* or tender sprouts of bamboo mentioned in connection with a banquet described there.

Lu ki :—*Sün* are the young shoots of bamboo. All the bamboos generally put forth their shoots in the fourth month, only the 巴竹 *pa chu* (bamboo from Sz'ch'uan) shoots out in the eighth or ninth month. These young shoots when they come out from the ground, being several inches long, are used for food. They are steeped in bitter wine or prepared with soy (豉汁). Bamboo-sprouts best suit wine.

Chou li, 110, 111 :—Provisions for the table of the Son of Heaven and offered in sacrifice. Pickled bamboo-sprouts, one of the seven vegetable pickles [*see* 376, note].

[Compare the *Rh ya*, 42, and *infra* 564 簵 *mei*, 565 *Bambusa edulis*.]

374.—箈 *Tai*, also written 薹.

Chou li, I, 110, 111 :—Provisions for the table of the Son of Heaven and offered in sacrifice. Des pousses marinées de petit roseau (*tai*). This was one of the seven vegetable pickles [*see* 376, note].

Cheng Hüan refers to the *Rh ya* [174] where *tai* is explained by 箭萌 sprouts of a small bamboo [*v. infra*, 564].

375.—蒲 *P'u*. Legge translates rushes, bulrush, cat's tail.

Shi king, 548 :—Description of a banquet. *P'u* mentioned together with bamboo-sprouts. Legge says an edible rush, the sweet flag (which latter is *Acorus calamus*). Mao explains it by 蒲蘧 *p'u jo*.[14] Cheng Hüan says it is the same as the 深蒲 *shen p'u* in the *Chou li*. This latter is noticed there [I, 110, 111] among the vegetable dishes

[14] Regarding the meaning of *jo*, see *supra*, 99. *infra*, 395; *W.D.*, 295.

presented to the Son of Heaven. It was one of the five salted preparations [*see* 376, note]. BIOT calls it "pieds de jonc pris au fond de l'eau." Commentator A. (CHENG SZ'-NONG) :—On prend l'espèce de jonc appelée *pou* lorsqu'elle commence à pousser au fond de l'eau. The character *shen* means deep.

Shi king, 213 :—By the shores of that marsh there are rushes (*p'u*) and lotus plants. 401 :—The fishes are among the pond-weed, sheltered by the rushes (*p'u*).

In the *Chou li* [II, 270, 271] the *p'u* (BIOT translates jonc) is mentioned as produced in the Provinces of Ts'ing chou and Yen chou (Honan, Shantung).

The *p'u* was also used for making mats. See the *Li ki*, II, 185 [Mourning Rites] :—The body of a great officer was laid on a mat of typha grass (蒲席).

In *P.*, XIX, 15, the *p'u* of the Classics is identified with the 香蒲 *hiang p'u* (fragrant *p'u*), which is the common name for the reed-mace *Typha latifolia*, L., the young shoots of which are eaten, and the leaves used for making mats. The mace, or rather the pollen, is 蒲黃 *p'u huang*. Rude figures of the plant in the *Kin huang*, LIII, 12, and in *Ch.*, XVIII, 4. In Southern China, where *typha* is unknown, the name *p'u* is applied to a *Cyperacea*, the *Lepirosia mucronata*, Rich., [*r. infra*, 455].

Amœn. exot., 900, 蒲 *jo*, vulgo *kamma*. Gramen cyperinum palustre.

SIEBOLD, *Syn. plant. œcon. jap.*, 7, same Chinese character : *Typha angustifolia*. Japonice *gama*. Usus pro fomite. *Phon zo*. XXXIII, 18–20, 香蒲 *Typha angustifolia*.

Regarding the term 蒲柳 *p'u liu* [*r. infra*, 525].

In LEGGE's translation of the *Li ki* [II, 387] we read :—During the mourning rites for a mother, the son occupied the unplastered chamber, sleeping on typha rushes. The

character translated by typha rushes is 苻 *hu*. The Chinese commentator explains it by 蒲苹 *p'u p'ing* and says they made 席 mats of it. But in the *Rh ya* [180] *hu* is given as a synonym for **地黃** *ti huang*, *Rehmannia glutinosa*.

E., 68, *v. supra*, 98. For **黃蒲** read **蒲黃**. The figure of *Typha bears* the name **蒲筍**.

S., I, 42. *C.*, 1054. *A.*, XV, 181, *Typha latifolia*, L. *Sm.*, 224. *Jap.*, 2253, *Typha japonica*, Miq., **香蒲**. Comp., *Jap.*, 2113, *Sparganium longifolium*, Trcz., **黑三稜**.

376.—Among the vegetable dishes furnished for the table of the Son of Heaven, as mentioned in the *Chou li* [I, 109–111] there is one called **菖本** *ch'ang pen* (root of the *ch'ang*) which the Commentator A. (CHENG SZ'-NUNG) defines by 菖蒲 *ch'ang p'u* and BIOT translates by Galanga.

The character 菖 *ch'ang* is applied in China and Japan to *Acorus*, of which several species, including the common sweet flag (*A. calamus*) are found in Eastern Asia.

P., XIX, 8 and 13, 菖蒲 *ch'ang p'u*, **石菖蒲** *shi ch'ang p'u*, **白菖** *pai ch'ang*, names for various species of *Acorus*. Corresponding drawings *Kin huang*, LI, 9, and *Ch.*, XVIII, 2.

LOUREIRO, *Flora coch.*, 259, *Acorus calamus* (LOUREIRO's plant is *A. terrestris*, Rumphius) sinice: *xe cham pu*. *Ibidem*, 258, *Orontium cochinchinense* (*Acorus cochinchinensis*, Kth.) sinice: *xui cham pu*.

Amœn. exot., 900, 菖 *sju*, vulgo *soobu*. Herba arundinacea palustris, foliis liliaceis, ob pulchritudinem in hortis et cisternis recepta; cujus tres habentur species foliorum magnitudine differentes: *soo*, foliis longissimis; *ajami*, mediocribus; et *siki soba* parvulis, quæ in fictilibus asservatur. THUNBERG [*Flora japon.*, 33] refers KÆMPFER's plant to *Iris versicolor* (*i.e.*, *I. lævigata*, Fisch.) But he is, it seems, mistaken, for KÆMPFER, judging from the Japanese names he gives, speaks of *Acorus*,

SIEBOLD, *Syn. plant. œcon. jap.*, 4, *Acorus calamus*, L., *var. asiatica*. Japonice *sjoobu*, sinice 泥菖 (the first character means mud). Usus pro ceremoniis. The same is figured by SIEBOLD [*Icones ined.*, VIII].

SIEBOLD, *Syn. plant. œcon.*, 5, *Acorus gramineus*, Ait. Japonice *seki-sjoo*, sinice : 石菖蒲. Same figured in *Icon. ined.*, VIII. Same Japanese and Chinese names given in the *So moku* [VI, 11] to *Acorus gramineus*. This plant, according to MIQUEL (quoted by SIEBOLD) has been introduced into Japan from China. SIEBOLD says :—*A. gramineus* et *A. pusillus* pro septis lacuum artificialium in hortis, nec non ob virtutem in contusionibus colitur.

So moku, VII, 9, 10, 白菖 (white *ch'ang*), japonice *sjobu*, *A. spurius*, Schott. The same in *Phon zo*, XXXIII, 16, 17. *Ibidem*, 13–15, under 菖蒲, five drawings representing species of *Acorus*, but only leaves.

The *ch'ang pen* mentioned in the *Chou li* [I, 110, 111] as a vegetable dish, was one of the five salted preparations.[15]

Tso chuan, 217 [B.C. 628. An entertainment described] :— There were the pickled root of the sweet flag cut small, rice,

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[15] We read in BIOT's translation of the *Chou li* [I, 111] :—

Les employés au vinaigre [醢人, *supra*, 349] sont chargés de préparer les cinq marinades (五齏 *wu tsi*, the five salted preparations) et les sept conserves végétales (七菹 *ts'i tsü*, the seven vegetable pickles).

D'après le Comm. B. (CHENG HÜAN) les cinq marinades étaient :—

1.—Racines de Galanga confites, *tchang pou* (roots of *Acorus*). 2.—Les grandes huîtres 蜃. 3.—Cotelettes de porc. 4.—Tranches de bœuf. 5.—Pousses des pieds de joncs [sprouts of *Typha*, *see* 375].

Les sept conserves végétales étaient :—

1.—韭 (*Allium odorum*, see *supra*, 359). 2.—菁 (Salted turnips, *supra*, 361). 3.—茆 (*Brasenia peltata*, a water-plant, *infra*, 398). 4.—葵 (*Malva*, see *supra*, 368). 5.—芹 (*Œnanthe stolonifera*, a kind of celery, *supra*, 370). 6.—筍 (small bamboo sprouts, *supra*, 374). 7.—筍 (bamboo-sprouts, *supra*, 373).

millet (black), and the salt in the form of a tiger 有昌獸白黑形鹽.

E., 68. *Jap.*, 46, *Acorus Calamus*, L., 水菖蒲. [*V. Sm.*, 4.]

„ 47, „ *gramineus*, Ait., 石菖蒲.

„ 48, „ *pusillus*, Sieb., 錢蒲.

„ 49, „ *spurius*, Schott, 白菖.

377.—The 蕨 *küe* and the 薇 *wei*, two plants mentioned in the *Shi king*, and twice together, are, according to LEGGE, two ferns. He terms the first "turtle-foot fern" and the other "thorn fern."

Shi king, 23, 24 :—I ascended the hill in the south and gathered the turtle fern and the thorn fern. Also 358, 359.

The *küe*, also called *pie*, is mentioned in the *Rh ya* [185].

LU KI :—The *küe* is also called 鱉 *pie*. It is a mountain vegetable. In 周 Chou and 秦 Ts'in (Southern Shensi and Eastern Kansu) they call it *küe*, in 齊 Ts'i and 魯 Lu (both in Shantung) it is *pie*. When it first begins to grow it resembles the foot of the turtle called *pie*, whence the name. Its stem is of a dark purple colour. The plant is eaten like the *k'ui* or mallow.

P., XXVII, 25 :—The *küe* is described as a common mountain plant. The young leaves are rolled up and resemble a child's fist. When expanded they resemble the tail of a phœnix. The stalks are cooked for food. The root is of a purple colour outside and contains within a white flour which can be eaten.

The figure under *küe* in *Ch.*, IV, 17, represents a fern, it seems *Pteris aquilina*, L., the common brake. According to HENRY, [*l. c.*, 91] *küe* in Hupei is *Pteris aquilina*. An arrowroot is prepared from the rhizome. *Pt. aquilina* is a common mountain plant all over China and Japan.

Amœn. exot., 蕨 *ketz*, vulgo *warabi*. Filix in genere, et in specie Filix ramosa major, pinnulis obtusis non dentatis. C.B.P. Scapi novelli ejus inter olera recipiuntur. This is

Pteris aquilina. *See* drawing, *Phon zo*, XLIX, 27, 28.—Siebold [*Syn. plant. œcon. jap.*, 444] *Pteris aquilina*, japonice *warabi*. Frondes juniores, foliis nondum explicatis, edules sunt et fere ubique fasciculi ejus in tabernis venales exponuntur mensibus Aprili ac Majo. Radix lignosa conditur et effusa prima aqua, amylo sic secreto, quod sub nomine *warabi nori*, venit pressa, coquitur, atque licet tunc nigricet, a pauperioribus comeditur.

V. supra, 177. *Jap.*, 1794. Other Filices are mentioned :—

Jap., 61, *Adiantum monochlamys*, Eat., 石長生.

„ 174, *Angiopteris evecta*, Hoffm., 觀音座蓮.

„ 246, *Aspidium aculeatum*, Sw., *var. japonicum*, Fr. & S., 毛蕨.

„ 253, *Aspidium falcatum*, Sw., 貫衆 [*v. supra*, 110].

„ 274, *Asplenium nipponicum*, Metten., 倒掛草.

„ 275, „ *normale*, Don., 鐵腳鳳尾草.

„ 368, *Botrychium ternatum*, Sw., 陰地蕨.

„ 369, „ *virginicum*, Sw., 蕨簗.

„ 557, *Ceratopteris thalictroides*, Brong, 水蕨.

„ 723, *Cyathea spinulosa*, Wall., 桫欏.

„ 763, *Davallia bullata*, Wall., 海州骨碎補.

„ 767, „ *tenuifolia*, Sw., 烏韭.

„ 831, *Drymoglossum carnosum*, Hk., 螺鬁草.

„ 1051, *Gymnogramme japonica*, Desv., 蛇眼草.

„ 1359, *Lygodium japonicum*, Sw., 海金沙.

„ 1517, *Onychium japonicum*, Kze., 小雉尾草.

„ 1520, *Ophioglossum vulgatum*, L., 瓶爾小草.

„ 1538, *Osmunda regalis*, L, *var. japonica* Milde, 薇 [*v. infra*, 378].

„ 1722, *Polypodium ensatum*, Thbg., 水石韋 [*v. infra*, 455].

„ 1723, *Polypodium hastatum*, Thbg., 金雞脚, 鵞掌金星草.

Jap., 1725, *Polypodium lineare*, Thbg., 瓦韋, 劍丹.
„ 1727, „ *lingua*, Sw., 石韋, 飛刀劍.
„ 1733, „ *vulgare*, L., 水龍骨.
„ 1794, *Pteris aquilina*, L., 蕨.
„ 1799, „ *serrulata*, L. f., 井口邊草, 鳳尾草.
„ 2030, *Scolopendrium vulgare*, Sm., 水扒周.
„ 2386, *Woodwardia japonica*, Sw., 狗脊.

378.—The 薇 *wei*, mentioned together with the *kue* fern in the *Shi king* [23, 358, 359] is called thorn fern by LEGGE. He relies for this identification upon CHU HI, who says that the *wei* resembles the *küe* but that it is rather longer and has spinous points and a bitter taste. But CHU seems to be mistaken, for none of the earlier commentators on the *Shi king* ventured to refer the *wei* to a fern. MAO says simply it is a vegetable, the *Rh ya* [167] states only that it grows by the edge of the water; the *Shuo wen* says it is a vegetable which resembles the 藿 *ho* [*c. supra*, 354], thus it may be supposed that it is a leguminous plant.

LU KI states:—The *wei* is a mountain vegetable. It is a creeper, in its stem and in the leaves it resembles the 小豆 *siao tou* [*Phaseolus Mungo*, *c. supra*, 355]. It resembles this latter plant also in taste. The leaves are eaten both raw and cooked. Nowadays it is grown in the government's gardens and used at the sacrifices in the ancestral temple.

P., XXVII, 26, describes the *wei* as a leguminous plant, also called 野豌豆 *ye wan tou* (wild pea) and eaten as a pot-herb.

The drawing in *Ch.*, IV, 19, representing the *wei*, is rude, only leaves which seem to refer to a leguminous plant.

At Peking the name *wei* is applied to *Vicia gigantea*, Bge. The 野豌豆 in the *So moku* [XIII, 12] is *Lathyrus maritimus*, Bigel.

I may, however, observe that in Japan, the Chinese character 薇, in accordance with CHU HI's view, is applied

to a fern. The *Phon zo* [XLIX, 29, 30] figures under this name *Osmunda regalis*, L. But this plant also has no thorus.

There is a plant which in China and Japan is termed 白薇 (the white *wei*). The *So moku* [IV, 26–29, 31] figures under this name various species of *Vincetoxicum*.

Jap., 1538, *Osmunda regalis*, L., *var. japonica*, Milde, 薇.
„ 2330, *Vincetoxicum atratum*, Morr. & Decn., 白薇. A good figure, *v. E.*, 157, and *infra*, 468.

379.—藷薁 *Shu yü*. This name of a plant is repeatedly met with in the *Shan hai king*. Kuo P'o says that it has an edible root, resembling that of the 羊蹄 *yang ti* (*Rumex*). In Kiangnan the name is written 藷語 *shu yü*. The root is light or heavy.

The *Kuang ya* writes 薯蕷 *shu yü*, and with the latter name it is described in *P.*, XXVII, 33, as a climbing plant, both wild and cultivated, with edible roots, a purple stem, shining three-cornered leaves resembling those of the 牽牛 *k'ien niu* (*Pharbitis triloba*); flowers in spikes, followed by three-angled capsules. The seeds are produced by the side; they are of various sizes, greater and smaller, resembling the nodules of the 雷丸 *lei wan* (*Mylitta lapidescens*). [The Chinese authors mean, it seems, axillary bulbils, not seeds.] The plant is also called 山藥 *shan yao* (mountain drug) and 山芋 *shan yü* (mountain *taro*).

Shan yao is nowadays the common name in North China for the cultivated *yam*, *Dioscorea japonica*, Thbg. In other parts of China the same name is applied to *D. Batatas*, Dene., and other species. Henry, *l.c.*, 412:—*Shan yao* in Hupei is *D. quinqueloba*, Thbg., also *D. japonica*. A good drawing of *Dioscorea* in *Ch.*, III, 25. [See also the *Kiu huang*, LI, 15, and LIX, 32.]

Amœn. exot., 828, 薯蕷 *dsojo*, vulgo *jumma imo*. Herba montana scandens, radice esculenta pingui, longa, carnosa,

incertæ figuræ, quam ex loci conditione induit; folio graminis Parnassi membranaceo; spicis floridis palmaribus; floribus Lychnidis pumilis hexapetalis, vix oscitantibus. THUNBERG, *Flora jap.*, 151, identifies this with *D. japonica*, as does also SIEBOLD, *Syn. plant. œcon.*, 74. *So moku*, XX, 59, 60. same plant, wild and cultivated, under **山藥**.

E., 54, family **薯**, with five figures of *Dioscorea*.

S., I, 20, two bad figures. *C.*, 503, 1108. *A.*, XV, 177, *D. oppositafolia*, L.

H., 412, **黃薑**, is *Curcuma longa*, L., in Canton. *Jap.*, 719, **薑黃**. *C.*, 75. **牽牛** is *Jap.*, 1156, *Ipomœa hederacea*, L.

Jap., 806, *Dioscorea japonica*, Thbg., **野山藥** or **薯蕷**.

„ 807, „ *quinqueloba*, Thbg., **山薥蘼**.

„ 808, „ *sativa*, L., **川薥蘼**.

380.—**芝** *Chi*. This name appears among the articles of food enumerated in the *Li ki* [I, 461]. LEGGE translates it incorrectly by "lichens." Evidently mushrooms are meant. The Chinese commentators explain it by **木芝** (*Fungi* growing on trees). [Comp. *W.D.*, 53.]

See also the *Rh ya*, 41.

381.—**薑** *Kiang* (Ginger).—This pleasant stomachic, nowadays employed in China and Japan, when fresh, to spice dishes, and used in a preserved state as a sweetmeat, was well known to the Chinese in early times.

In the *Li ki* [I, 461] it appears among the articles of food enumerated there. *Ibidem*, I, 135:—TSENG TSI (one of the disciples of Confucius) said:—When one during his mourning rites falls ill, and has to eat meat and drink spirits, there must be added the strengthening flavours from vegetables and trees, meaning thereby *ginger* and *cinnamon* (**桂** *kui*).

CONF. *Anal.* 97:—Confucius was never without *ginger* when he ate.

E., 43, family 薑, with three figures. Two varieties of one, and another distinct species.

It has been found out at Kew that Chinese ginger is not *Zingiber*, but an *Alpinia*.

Jap., 119, *Alpinia Galangas*, Sw., 高良薑. *H.*, 37, *Liang chiang* = *Polygonatum sibiricum*, Red.

„ 120, *Alpinia japonica*, Miq., 山薑.

„ 2398, *Zingiber Mioga*, Rosc., 蘘荷.

„ 2399, „ *officinale*, Rosc., 薑.

S., X, 2. *Pr.*, 100. *Sm.*, 102, 127. Comp., *Jap.*, 442, *Canna indica*, L., 曇華.

III.—*Cultivated Cucurbitaceous Plants.*

382.—瓜 *Kua* is a generic term for the fruits of cucurbitaceous plants, especially the cultivated ones. [Comp. *W.D.*, 466].

The *Shuo wen* explains 瓜 by 蓏瓜, but evidently 蓏 *lo* is meant, which, by an ancient author quoted in *K.D.*, is said to denote fruits which ripen on the ground. The term refers especially to cucurbitaceous plants.

The early Chinese commentators on the Classics do not give any more exact definition of the character 瓜 occurring so frequently in the Classics. LEGGE translates it variously by melon, gourd, cucumber; BIOT and DOUGLAS by melon.

Shi king, 231 ["Life in Pin"]:—In the seventh month they eat the *melons*. 375:—In the midst of the fields are the huts, and along the bounding divisions are *gourds*, and the fruit is sliced and pickled. 469:—The *gourds* planted by HOU TSI yielded abundantly. 437:—In long trains ever increasing grow the gourds and the *tie* [see farther on].

Li ki, I, 82:—He who pares a *melon* for the Son of Heaven should divide it into four parts and then into eight and cover them with a napkin of fine linen. I, 307 [*Yüe ling*]: *Melons.* I 433:—The Son of Heaven planted *gourds.* I 461 ["Diet of the Ancient Chinese"]:—*Cucumbers* (瓜).

Calendar of the Hia, 65:—Fifth month. Clothed are the *melons.* 91:—Ninth month. Sliced are the *melons.*

In the text of the *Chou li* the character 瓜 does not appear, it seems. The character 蓏 occurs there once [I, 383] and Biot translates it by "fruits sans noyaux." Commentator B. (Cheng Hüan) dit 瓜 melons, 夸 citrouilles.

In *P.*, XXXIII, 1 article 甜瓜 *tien kua* (sweet *kua*), nowadays the common name for melons, also 甘瓜 *kan kua*, which has the same meaning. Li Shi-chen suggests that the *kua* mentioned in the above-quoted passage from the *Li ki* [I, 82] was a melon. He seems to be right. But as to the other quotations we are left in doubt whether the *kua* there mentioned were melons or what we call pumpkins, gourds, squashes, *i.e.* species of the genus *Cucurbita*. Nowadays the Chinese cultivate throughout the empire the *Cucurbita maxima* or Melon Pumpkin (the potiron of the French), the *C. Pepo* or Pumpkin gourd, and *C. moschata*. Of the *C. maxima* they have many varieties, varying considerably in size and shape of the fruit and in the colour of the skin. At Peking they are called 南瓜 *nan kua* and 番瓜 *fan kua*. They are generally of large size, but there is also a variety which is not larger than a peach. It is called 桃兒紅南瓜, *t'ao rh hung nan kua*, red peach pumpkin. *Cucurbita moschata* is 倭瓜 *wo kua*. The *Benincasa cerifera*, 冬瓜 *tung kua*, is also much grown in China. The surface of its large fruit is covered with a waxy exudation,

All the cucurbitaceous plants now cultivated for food in China are probably indigenous to the country, with the exception of the cucumber and water melon, which, as their Chinese names indicate, were introduced from the West.[16] LEGGE is therefore wrong in using the term cucumber in his translation of the *Li ki*.

E., 44, 45, family **瓜**, with figures of:—

Benincasa cerifera, Savi., **冬瓜** also called **白瓜**, **水芝** and **地芝**. *C.*, 1390–1392. *Sm.*, 80. *Jap.*, 1223.

Cucurbita moschata, Duch., **南瓜**, also called **陰瓜**. *A.*, XV, 153. *P.*, XXVIII, 9. *Sm.*, 80. *Jap.*, 713.

Cucumis Melo, L., *var.* *Jap.*, 709, *C. conomon*, Thbg., **越瓜** also **稍瓜**, **菜瓜**. *Jap.*, 710, *C. flexuosus*, L., **羊角瓜**. *Sm.*, 79. *C.*, 1324. *A.*, XV, 153, **甘(甜)瓜**. *P.*, XXXIII, 1.

Cucumis sativus, L., **黃瓜** or **胡瓜**. *S.*, III, 10. *Pr.* 16. *P.* XVIII, 40. Compare *Sm.*, 80. *Jap.*, 712.

Luffa cylindrica, Röm. [*Jap.*, 1333, *L. petola*, Ser.], **絲瓜** or **天絲瓜**, **蠻瓜**, **天羅**, **布瓜**. *S.*, X, 51. *C.*, 1190. *A.*, XV, 153. *Sm.*, 79.

Momordica Charantia, L., **苦瓜** or **錦荔枝**, **癩葡萄**. *C.*, 628. *A.*, XV, 153. *Sm.*, 91 and 151. *Pr.*, 80. *Jap.*, 1450.

Thladiantha dubia, Bge., **王瓜** or **土瓜**, **野甜瓜**, **老鴉瓜**, etc., *v.* 152 and 386. [*Jap.*, 2224, *v.* 152.]

Cucumis Melo, L., **甜瓜** or **香瓜**. *A.*, XV, 153.

Citrullus vulgaris, Schrad., **西瓜** or **寒瓜**, **楊溪瓜**. *A.*, XV, 153. *Sm.*, 65. *Jap.*, 607.

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[16] LI SHI-CHEN in *P.*, XXVIII, 14. states that the **胡瓜** *hu kua* or foreign *kua*, was brought to China from Western countries by the famous general CHANG K'IEN [in the 2nd century B.C. See *Botan. sin.*, I. p. 24]. In the 4th century the name *hu kua* was changed into **黃瓜** *huang kua* (yellow *kua*) which is still the Chinese name for the cucumber in China and Japan. *Ch.*, IV, 48. *So moku*, XX, 38.

The water melon. **西瓜** *si kua* (Western melon) was introduced into China in the 10th century from the country of the Ki tan (Eastern Mongolia and Manchuria). The Ki tan had previously brought this fruit from the country of the Hui ho (Uigurs). For further details see the *Wu tai shi*, quoted in *K.K.F.P.*, LXVII, 16, and *P.*, XXXIII, 6. *Ch.*, XXXI. 28. *So moku*, XX, 48.

383.—Twice in the text of the *Shi king* we find the characters 瓜 瓞 *kua* and *tie* associated. Page 469 :—Legge translates *kua tie* by gourds ("the gourds planted by Hou tsi yielded abundantly.") Page 437, he renders the same term by "the gourds and the *tie*."

The *tie* is given in the *Rh ya* [58] as a synonym for 瓞 *cho*.

Legge explains the character *tie* (after Chu Hi it seems) as meaning the gourd near the root, where it begins, very small as compared with the *kua* when it has grown and extended with a vast development of tendrils and leaves. I prefer to this obscure explanation, the definition given by K'ung Ying-ta, who states that in the Han dynasty the term *tie* was applied to the small *kua*, 小瓜, whilst by 瓜 the large kinds were denoted. But here again it is impossible to decide whether gourds or melons are meant. The Chinese cultivate small varieties of *Cucurbita maxima* and have also melons of a very small size.

384.—瓠 *hu* ; 壺 *hu* (it means a pot, and is also written 瓢), 匏 *p'ao* and 瓢 *p'iao*.

All these names in the Classics refer to *Lagenaria vulgaris*, L., the Calabash or Bottle gourd and its varieties. Legge translates them by bottle gourd, gourd, melon ; Biot by "citrouille" (*pumpkin*) [*Chou li*, I, 383, note].

Li ki, I, 307 [*Yue ling*] :—Melons (瓜) and gourds (瓠).

Shi king, 420 :—Of the gourd (瓠) leaves some are taken and boiled. 271 :—In the south are trees with curved drooping branches and the sweet gourds (甘瓠) cling to them. (Chu Hi explains that there are sweet and bitter *hu*. 95 :—Her (a lady's) teeth were like melon-seeds 瓠犀. The second character here stands for 棲. See the *Rh ya* [21]. Chu Hi explains :—The section of a melon showing the seeds regular and white.

Shi king, 231 ["Life in Pin"]:—In the eighth month they cut down the bottle-gourd 壺. Chu Hi explains:—Same as 瓠.

Legge, *Shi king* [53] says:—The 匏 *p'ao* in the *Shi king* is no doubt the bottle-gourd, called also *hu* and *hu lu*. When the fruit has become thoroughly hard and ripe, the shell, emptied of its contents, can be used as a bladder. We often see one or more tied to boat-children on the Chinese rivers, to keep them afloat, should they fall into the water.

Shi king, 53:—The gourd (匏) has still its bitter leaves and the crossing at the ford is deep. Mao explains:—The *p'ao* is the same as the 瓠 *hu*. Its leaves are bitter, cannot be eaten. Chu Hi says:—The fruit was not yet hard enough to serve the purpose of a bladder in crossing a stream.

Lu ki says:—The young leaves of the *p'ao* are eaten. The people prepare from them a soup of a very pleasant taste. The people from Honan to 揚州 Yang chou (Chekiang and Anhui) eat these leaves till the eighth month, when they become bitter, wherefore the *Shi* says the *p'ao* has its bitter leaves.

Shi king, 487:—He poured out his spirits into calabashes (*p'ao*), *i.e.*, Duke Liu, the ancestor of the Chou. Cheng Hüan explains:—They used calabashes for cups to drink.

Conf. *Anal.*, 185:—Am I a bitter gourd (匏瓜)? How can I be hung up out of the way of being eaten?

Ibidem, 52:—Admirable was the virtue of Hui, with a single bamboo-dish of rice and a single gourd-dish of drink 一瓢飲.

The *Ku kin chu* explains that *piao* is a kind of *hu* or bottle gourd. The term is also applied to a drinking vessel made of it.

The *P'i ya* [11th century] states that the above names referring to the bottle gourd are not synonyms but names

for distinct varieties. That with a long fruit tapering towards the upper end (the stalk) is 瓠 *hu*; it is sweet; that having a short fruit with a large belly is the 匏 *p'ao*. The 壺 *hu* resembles the *p'ao* but is of a more globular shape.

At Peking the name 瓠子 *hu tsz'* is applied to a *Lagenaria* with a large club-shaped fruit from 2 to 3 feet long. The varieties of the bottle-gourd with smaller fruits, pear-shaped or oblong and narrowed in the middle (with a 腰 or waist as the Chinese say) are called 壺蘆 *hu lu*.

See with respect to the bottle-gourd *P.*, XXVIII, 4, 6, 9. Compare also *Amœn. exot.*, 810, 811, *So moku*, XX, 46, 47, and *Phon zo*, LII, 17-23, where different varieties of the bottle-gourd, cultivated in Japan, are described and figured under the above-mentioned Chinese names.

Lagenaria vulgaris, L., 瓠 and 20 other names, *v. E.*, 47. *S.*, X, 33. *A.*, XV, 152. *Pr.*, 133. *Jap.*, 1224.

385.—果蠃 *Kuo lo*. LEGGE calls it the heavenly gourd, and says that in the Japanese plates it is the musk melon.

Shi king, 236:—The fruit of the heavenly gourd would be hanging about our eaves.

Comp. the *Rh ya* [23]. KUO P'O calls this plant 天瓜 *t'ien kua* or heavenly gourd.

K'UNG YING-TA says:—According to the *Rh ya*, it is the fruit of the 栝樓 *kua lou*, but LI SÜN says that the name is applied to the seeds. The *Pen ts'ao* says the *kuo lo* has leaves like the *kua* (gourd). They come out two and two, opposite to each other. It is a twining plant. The flowers appear in the sixth, the fruits in the seventh month. The fruit is like a gourd.

P., XVIII*a*, 34 [*Kua lou*]:—The ancient authors quoted there describe it as a climbing plant with lobed leaves, pale yellow flowers resembling those of the *hu lu* (*Lagenaria*). Globular orange-coloured fruit of the size of a fist. The root

contains a white flour which is used in medicine, as is also the fruit. Figured *Ch.*, XXII, 27. *Kiu huang*, LIII, 18.

At Peking the *kua lou* is the *Trichosanthes Kirilowii*, Maxim., a cucurbitaceous plant spread over the whole of China. It is a beautiful plant, winding itself round the stems and branches of trees. Five-lobed leaves, fragrant white flowers beautifully fringed. In autumn the orange-coloured globular fruits of the size of a man's fist hang gracefully down from the branches on long slender stalks. The name *kua lou* may perhaps be also applied to other species of *Trichosanthes*.

So moku, XX, 35:—栝樓 *Trichosanthes japonica*, Rgl. *Phon* 20, XXVII, 12, same Chinese name, *Tr. japonica*, and 11 tubers and fruit of *Tr. multiloba*, Miq.

E., 151, family 栝樓, has a figure of *Trichosanthes multiloba*, Miq. *S.*, II, 20. *P.*, XVIII, 34. *Jap.*, 2225, *Tr. japonica*, Regel.

E., 170. family 白藥子. with figure of *Trichosanthes palmata*, Roxb.

Some more Chinese names are given in:—

Jap., 54, *Actinostemma japonicum*, Miq., 合子草.

„ 1419, *Melothria Regelii*, Naud., 馬陵兒.

„ 1056, *Gynostemma cissoides*, Bth. & H., 絞股藍.

386.—王瓜 *Wang kua*, the royal melon, as LEGGE translates.

Li ki, I, 268 [*Yue ling*]:—First month of summer. The royal melons grow. CHENG HÜAN explains *wang kua* by 萆挈 *pi kie*, and refers to the *Calendar of the Hia* [56], where we read:—In the 4th month 王瓜莠 [DOUGLAS translates] reign the grass and the *yu* weed. I do not agree with DOUGLAS's translation. It seems to me that BIOT, who translates: "la grande courge *wang kua* fleurit," is nearly correct. Evidently this sentence in the *Hia Calendar* 4th month, corresponds to the above-quoted in the *Yue ling*. first month of summer. where no doubt a cucurbitaceous

plant is spoken of, which CHENG HÜAN supposes to be the same as the 王蒭 *wang ju* of the *Hia Calendar*. 莠 *Yu* is the name of a weed. But the Chinese commentator on the *Hia Calendar* is right in assuming that *yu* is a mistake for 秀 *siu* (to flourish).

Later commentators identify CHENG HÜAN's *pi kie* with the plant 菠薐 *pa k'ie* of the *Pen ts'ao*, which seems to be *Smilax China*, L. *P.*, XVIII*b*, 3. Root used in medicine. The drawing of the *pa k'ie* in *Ch.*, XXII, 53, agrees well with the figure given by KÆMPFER in *Amœn. exot.* [782] and with the above Chinese characters added. The plant represented there is *Smilax China*, L.

Other Chinese commentators refer, with respect to the *wang kua*, to the *Rh ya* [34 and 152]. The name seems to be applied to several plants.

The plant described in *P.*, XVIII*a*, 40, under the name 王瓜 *wang kua*, also called 赤雹 *ch'i pao*, and figured *Ch.*, XXII, 30, is *Thladiantha dubia*, Bge., a beautiful cucurbitaceous climber of North China. It produces in summer a profusion of yellow flowers which are followed by small oblong red fruits. The name *chi pao*, usual at Peking, means "red hail stone." The tuberous root of the plant is mealy and used in medicine. I suspect this was the royal melon of the Classics.

In Japan, where, it seems, the genus *Thladiantha* is not represented, the Chinese name 王瓜 is applied to *Trichosanthes cucumeroides*, Ser. [See *So moku*, XX, 34].

E., 146, family 菠薐, with two figures of *Smilax*. 王瓜根 is a synonym. *Jap.*, 2096.

E., 133, family 遠志 [*v.* 194] *Polygala*, 王蒭 is mentioned as a synonym.

387.—苦瓜 *K'u kua*, bitter gourd.

Shi king, 237 :—The bitter gourds hanging down from the chestnut tree.

K'u kua is now the name applied in China as well as in Japan to *Momordica charantia*, L. The fruit of this cucurbitaceous plant is bitter and covered with little wart-like protuberances, wherefore the Chinese call it also 癩瓜 *lai kua* (leprosy gourd). *P.*, XXVIII, 21, *Ch.*, V, 6, *So moku*, XX, 36.

Li Shi-chen, however, does not mean to identify the *k'u kua* of our days with that of the *Shi king*, proving that *Momordica* is not indigenous to China but was introduced from the south.

IV.—*Textile Plants.*

388.—The character 麻 *ma*, which nowadays is a generic term for plants yielding textile fibres, was in ancient times applied exclusively to the common hemp plant, *Cannabis sativa*, L. As is well-known, its flowers are of separate sexes on different plants. The male plant was called 枲 *si* or *i*. In the *Rh ya* [104] this character is given as a synonym for 麻. The female or seed-bearing plant was 苴 *tsü*. The *Rh ya* [140] gives 賁 *fen* as a name for hemp-seed.

The *Lu shi* [Sung dynasty] relates a tradition according to which the Emperor Shen nung [28th century B.C.] first taught the people to cultivate the *ma*, or hemp, and the mulberry tree, for making hempen and silken cloth (布 *pu* and 帛 *po*).

The *Rh ya i* [12th century] says the *ma* is used for food [the seed] as well as for making cloth (布) from its fibres. The plant which bears seed is called *tsü*, that which has no seed is *si*.

As hemp-seed was an article of food, the hemp in ancient times was reckoned as one of the five, or nine, kinds of grain [*v. supra*, 335].

Li ki, 1, 284 [*Yue ling*] :—First month of autumn. The Son of Heaven eats hemp-seed with dog's flesh. Same state- [..., 291] for the second and third months of autumn. The text has only *ma* (hemp). LEGGE translates hemp-seed on the authority of the Chinese commentators.

Ibidem I, 88. ["Rules for the Period of Mourning"] :—A man of seventy will only wear the unhemmed dress of sackcloth (*ma*). I, 143 :—At the mourning rites for HUI TSZ', TZE YÜ went to condole, wearing for him a robe of sackcloth (麻衰) and a headband made of the product of the male [hemp] plant (牡麻絰). II, 49, 388 :—Mourning attire. hempen cloth, hempen dress (*ma*). I, 479 :—A girl of the age of ten was taught to learn women's work, to handle the hempen fibres (麻枲), to deal with the cocoon, etc. I, 369 :—The ancient kings knew not yet the use of flax (*ma*)[17] and silk (絲), but clothed themselves with feathers and skins. The later sages then arose . . . . they dealt with the flax and silk so as to form linen and silken fabrics.

Chou li, I, 163 :—Le directeur du chanvre (典枲) est préposé au chanvre (麻) et aux diverses plantes (草) pour faire les toiles ordinaires (布), les toiles à 15 largeurs de fils (緦), les toiles en filasse (縷) et les toiles claires (紵). KIA KUNG-YEN explains that all these fabrics were made of *ma* or hemp, with the exception of the 紵 *chu*, which was made of 草. [Other textile plants, *see infra*.]

Shi king, 122 :—On the mound where is the hemp (*ma*). 156 :—How do you proceed in planting hemp (*ma*)? The

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[17] Flax, *Linum saticum*, L., was unknown to the ancient Chinese. It is nowadays cultivated in the mountains of North China (probably also in other parts of the empire) and in Southern Mongolia, but only for the oil of the seeds, not for its fibres. The Chinese call it *hu ma* (foreign hemp). *P.* does not speak of it. Its introduction must be of more recent date. In *Ch.*, II, 31, is a good drawing of the plant under the name 山西胡麻 ***Shan si hu ma*** (foreign hemp of Shansi).

acres must be dressed lengthwise and crosswise. 206 :—She leaves twisting her hemp (*ma*). 208 :—The moat at the eastern gate is fit to steep hemp (*ma*) in. 221 :—A robe of hemp (*ma*) like snow. 232 [" Life in Pin "] :—The harvest is collected, hemp (*ma*) and other grains and vegetables. 469 :—The hemp (*ma*) planted by Hou tsi [*v. supra*, 343] grew strong and close.

Mencius, 132 :—Hemp (*ma*).

Conf. *Anal.*, 81 :—The Master said, the linen cap (麻冕 hempen cap) is that prescribed by the rules of ceremony.

Chou li, I, 27 :—Les femmes légitimes (femmes du premier rang) transforment par leur travail la soie (絲) et le chanvre (枲). II, 269 :—Le commerce de la province de 豫州 Yu tcheou (Honan) consiste en bois de bambou, en vernis, en soie, en chanvre (枲).

Shu king, 102, 117 :—[Tribute of Yü.] Hemp (枲) mentioned as a product of the provinces of 豫州 Yu chou and 青州 Ts'ing chou (Honan, Anhui).

Li ki, II, 384 :—[" Mourning Rites "] :—The head band worn with the frayed sackcloth, for a father when mourning, must be made of the fibres of the female [hemp] plant (牡 *tsü*). Legge states (on the authority of the Chinese commentators) :—The fibres of the male and the female hemp plant are both dark coloured, those of the female plant being the darker. The cloth woven of them was also of a coarser texture.

Shi king, 231 [" Life in Pin "] :—In the ninth month they gather the hemp-seed (*tsü*).

The character 蕡 *fen* has several meanings. In the *Yh ye* [298] it means exuberance of fruit, and in the same sense it occurs in the *Shi king*, 109. But in the *Chou li* [I, 107] the character denotes hemp-seed :—Les paniers de la cérémonie du matin sont remplis de blé mûr (穱), de la graine de chanvre (*fen*), de riz, de millet, etc. Cheng Sz'-nung

explains *fen* by hemp-seed, as in the *Rh ya* [104] the character 黂 *fen* is explained. In another place in the *Chou li* [I, 365] *fen* has the meaning of "extrait de chanvre," as Biot translates, used as manure.

In the *Li ki* the *fen* is noticed as an article of food. The Chinese commentators explain it by 大麻子 hemp-seed. I cannot understand why Legge [*l.c.*, I, 451] translates *fen* by spinach. He confounded it perhaps with 莧, which is *Amarantus Blitum*.

Legge defines the character 布 *pu*, frequently met with in the Classics, by "cloth," without saying of what material: Biot by "toile ordinaire." See the above-quoted passage from the *Chou li* [I, 163], from which it would appear that *pu* in ancient times denoted only hempen fabrics. Besides this, the *Shuo wen* explains *pu* by 枲織 or (cloth) woven of hemp. Nowadays *pu* is a general term for cotton, hempen and other textile fabrics.[18]

P., XXII, 11, calls the hemp plant 大麻 *ta ma*, the great hemp, a name given to it in the *Shen nung pen ts'ao*. The *Rh ya i* [12th century] terms it 漢麻 *han ma*, or Chinese hemp, in opposition to the 胡麻 *hu ma*, or foreign hemp, the *Sesamum orientale*, a plant introduced from Western Asia in the 2nd century B.C. A good drawing of *Cannabis sativa*, under *ta ma* is given in *Ch.*, I, 3. But at Peking the popular name of the hemp plant, which is also found there in a wild state, is 小麻 *siao ma* small hemp, whilst the name of *ta ma* is incorrectly applied by the people

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[18] Cotton, nowadays the most important among the textile materials produced in China, was unknown to the ancient Chinese. It was only about A.D. 1000 that this useful plant became fully introduced into the Southern Provinces of China, from Cochinchina. It is mentioned several centuries earlier in the Chinese annals as a product of foreign countries (Southern Asia and Central Asia). See the late W. F. Mayers' interesting paper on the subject in *Notes and Queries on China and Japan*, 1868, p 72.

to the *Ricinus* plant, the book name of which is 蓖麻 *pi ma*. Hemp in Northern China is also called 線麻 *sien ma*. The first character means cord, lines.

Amœn. exot. [897] 麻 *ba* and *ma*, vulgo *asa*, *Cannabis sativa*. *So moku* [XX, 52] 大麻 *Cannabis sativa*. SIEBOLD, *Syn. plant. œcon. jap.* [176] 麻 *asa*, *Cannabis sativa*, var. *indica*. Liber pro lintea ac funibus, semina pro cibo usitata.

E., 39, family 麻, contains besides the 大麻 [*v.* 140] :—

亞麻, the figure bad. *Jap.*, 1293, *Linum perenne*, L., var. *sibirica*.

蓖麻, *Ricinus*. 蒼麻 *Abutilon Avicennæ* [*v.* 389]. *Jap.*, 8.

苧麻, *Bochmeria nivea*, Hkr. & A. [*v.* 391]. *Jap.*, 358.

蕁麻, with bad figure. *Jap.*, 2262, *Urtica Thunbergiana*, S. & Z.

Jap., 671, *Corchoropsis crenata*, S. & Z., 田麻.

„ 672, *Corchorus capsularis*, L., 黃麻.

„ 2074, *Sesamum indicum*, L., 胡麻.

389.—蕢 *K'iung* is the name of a textile plant mentioned in the *Li ki*, II, 150 ["Mourning Attires"] :—A girdle made of the *k'iung* hemp.

Chou li, I, 379 :—The text speaks of textile plants cultivated in damp ground. CHENG SZ'-NUNG remarks that the plants *k'iung* [BIOT writes *king*] and *chu* [*tchou*, see 391] are meant.

The *Rh ya i* [12th century] says that this is the same as 枲麻 *k'iung ma*. Another name is 綮 *king*, of which the *Shuo wen* states that it is a kind of hemp.

These names are now applied to the *Abutilon Avicennæ*. Gærtn., (*Sida tiliæfolia*, Fish.) a common plant in Northern China, wild and cultivated. Cord is made of its fibres. It has broad leaves, a tall stalk, yellow flowers.

HENRY [*l.c.*, 267] 青麻 *ts'ing ma* or 檾麻 or 苘麻 *Abutilon Avicennæ*. The hemp exported from Sz'ch'uan is from this plant.

See *P.*, XV, 53, under the above names. Good drawing of the plant *Ch.*, XIV, 14. *Kin huang*, LII, 4, rude figure.

So moku [XII, 62] 蔴麻 *Abutilon Avicennæ*.

390.—葛 *Ko*. This name of a textile plant is frequently mentioned in the Classics. LEGGE is of opinion [*Shi king*, 6] that it is a general name for the *Dolichos* tribe, and in the *Shi king*, where this character occurs about twenty times, he identifies it with the *Dilichos tuberosus*, of whose fibres a kind of cloth is made. Sometimes he terms it also grass-cloth.

Li ki, I, 169 :—At the interment they used the cap of plain white silk and the head-band of *Dolichos* fibre (*ko*). I, 432 :—Sashes of *Dolichos* cloth (葛帶). II, 49, 139 ["Mourning Attire"] :—Girdle and cap of *Dolichos* cloth (*ko*). II, 388 :—When after the burial the hempen dress is put away, grass-cloth (*ko*) is worn ; 389, grass-cloth (*ko*) bands.

Shi king, 6 :—How the *Dolichos* (*ko*) spreads itself out. extending to the middle of the valley. Its leaves were luxuriant and dense. I cut it and I boiled it and made both fine cloth (絺 *ch'i*) and coarse (綌 *k'i*). which I will wear. 186 :—The *Dolichos* (*ko*) grows covering the jujube tree. 156, 163 :—*Dolichos* shoes (葛屨) mentioned. LEGGE (following the Chinese commentator), Shoes thinly woven of the *Dolichos* fibre may be used to walk on the hoar frost. CHENG HÜAN [*Chou li*, I, 168] :—En été on porte des souliers tissés en plante *ko*, en hiver des souliers de peau.

Chou li, I, 379 :—Le préposé aux plantes textiles *ko* (葛) est chargé de recueillir à diverses époques les matières qui servent à faire des toiles fines (絺) et grossières (綌) et qui sont fournies par les cultivateurs des montagnes. En général il est chargé de percevoir la taxe de la plante rampante *ko*.

The terms 絺 *ch'i* and 綌 *k'i*, frequently met with in the Classics, denote, as the ancient commentators (MAO in the *Shi king*, K'UNG AN-KUO in the *Shu king*) explain, the *ch'i* a fine, the *k'i* a coarse cloth made of the fibres of the *ko* plant. LEGGE translates sometimes fine and coarse linen, sometimes grass-cloth.

Shi king, 6 :—See quotation above.

Shu king, 102, 117 [Tribute of Yü] :—The *ch'i* mentioned as an article of tribute of the provinces of 青州 Ts'ing chou and 豫州 Yü chou (Anhui, Honan), the *k'i* only for Yü chou. LEGGE translates fine grass-cloth, finer and coarser hempen-cloth.

Chou li, I, 379 :—Toiles fines et grossières. See quotation above.

Li ki, I, 82 :—Napkins of fine and coarse linen (*ch'i*, *k'i*). I 153 :—HSIEN TSZ' said :—To have the mourning robe of coarse *Dolichos* cloth (*k'i*) and the lower garment of fine linen (*ch'i*) was not the way of antiquity. I, 270 [*Yüe ling*] :—First month of summer. The Son of Heaven begins to wear thin *Dolichos* cloth (*ch'i*).

CONF. *Anal.*, 94 :—The superior man (Confucius) in warm weather had a single garment either of coarse or fine texture (*k'i*, *ch'i*).

The *ko* [the name is still in use] is a climbing plant of the leguminous order, very common all over China and Japan. It grows wild in the mountains and is also much cultivated for the textile fibres of its stem as well as for its tuberous and farinaceous roots, which furnish an article of food. The fabrics made of the *ko* fibres are still much prized in China. The botanical name of this plant is *Pachyrhizus Thunbergianus*, S. & Z., also *Pueraria Thunbergiana*, Benth. THUNBERG described it first as *Dolichos hirsutus*.

The *ko* plant is described *P.*, XVIIIa, 42. Good drawing *Ch.*, XXII, 33. SIEBOLD *Syn. plant. æcon jap.*, 294,

Dolichos hirsutus, *kudsu* 葛 or 葛粉 (the second character= flour). Planta sponte crescens, linteum, amylum, funes, pabulumque equorum profert.

So moku, XIII, 25, 26, 葛 *Pueraria Thunbergiana.*

E., 111, family 葛, with figure of *Pueraria Thunbergiana*, Bth. Figure is copy of *S.*, II, 18, where two are seen. The other may be of *Pachyrhizus angulatus*, Rich.

C., 599, 600, 601. *A.*, XV, 146. *Sm.*, 88. *H.*, 176.

391.—紵 *Chu*. Legge [*Shi king*, 209] says it is described as a species of hemp, a perennial, and not raised every year from seed. In the Japanese plates it is evidently the *Boehmeria* or nettle from which grass-cloth is made. But as the radical of the above character indicates, this is not the name of the plant itself but of the fabric woven of its fibres. The *Shuo wen* refers it erroneously to the 綠 (which, as we have seen, is *Abutilon*) and says that the fine cloth made of it is called 絟 *ts'üan*, the coarser 紵 *chu*. Later authors take these fabrics to be derived from the 苧 *ch'u* plant, which is *Boehmeria nivea*, Hook & Arn. This latter name *ch'u* for the grass-cloth plant appears in the *Pie lu* [5th century] but it was much earlier in use. [V. *infra*, 458].

Shi king, 208 :—The moat at the east gate is fit to steep the *Boehmeria* (紵).

Li ki :—The 紵 *chu* is a kind of hemp (*ma*). Numerous stems come out from the same root, which is perennial, and in spring young plants shoot forth again without being raised from seed. In 荆州 King chou (Hukuang) and 揚州 Yang chou (Chekiang, Anhui) there are three crops in one year. Now the government raises this plant in gardens. An iron or bamboo knife is used to strip off the bark. After the thick outer bark has been scraped off, they get to the soft but tough fibres of the inner bark, which are boiled and then twisted and manufactured into cloth (紵). This fabric is used for garments all over southern China 南越 (Nan yüe).

Shu king 117 [Tribute of Yü] :—The *chu* mentioned as a product of 豫州 Yü chou (Honan). LEGGE translates incorrectly coarser hempen cloth.

In the text of the *Chou li* the character *chu* occurs once [I, 163]. See the quotation above under 388. BIOT translates "toiles claires." This fabric is twice mentioned by the Chinese commentators on the *Chou li* [I, 32] where BIOT translates "étoffes fines de soie," and [I, 379] *tchou*.

P., XV, 51, *Ch'u ma*, *Boehmeria nivea*. Figured in the *Kiu huang*, LI, 7, *Ch.*, XIV, 1, 5.

Amen erot., 891 :—苧 *Tsjo*, vulgo *sjiro o*, Cannabis alba, aliis *karanusi*, *karao* et *mao*. Urtica vulgaris major, vere florens, caule filis validis ad texturas expetitis instructo; semine acerrimo, ex quo oleum causticum exprimitur. *So moku*, XX, 4 :—苧麻 *Boehmeria nivea*. SIEB., *Syn. plant. œcon.*, 171 :—*Urtica nivea*, *mao*, 苧麻. Cortex pro funibus, liber pro linteo subtili.

V. supra, 388.

V.—*Tinctorial Plants.*

392.—The character 藍 *lan* is applied as a generic term to plants furnishing a blue dye. In the *Huai nan tsz'* [2nd century B.C.] we read 青出於藍, the blue colour is yielded by the *lan* (plant). The *Shuo wen* defines *lan* by 染青草 a plant (or plants) which dyes a blue colour. But nowadays the principal meaning of *lan* is "blue, a blue colour."

We meet several times with the term *lan* in the Chinese Classics. LEGGE translates it by Indigo plant.

Shi king, 412 :—All the morning I gather the Indigo plant.

Li ki, I, 274 [*Yue ling*] :—Second month of summer. The people are forbidden to cut down the Indigo plant (*lan*) to use it for dyeing.

Chou li, I, 380 :—Le préposé aux plantes de teinture, **掌染草**, est chargé de recueillir au printemps et en automne les espèces de plantes qui servent à la teinture. The text of the *Chou li* does not give the names of these plants, but the early commentators supply them. In Biot's translation [*l. c.*, note] we have to read *lan* for *lien*.

Hia Calendar, 68 :—Fifth month **啟灌藍蓼**. Douglas translates :—Begin to become luxuriant the *Ruellia* and the *Clematis*. Biot has :—Séparez (coupez) la plante *lan liao* (l'Indigo) qui est en pleine croissance.

Biot is correct in taking *lan liao* to be one name. It is the *Polygonum tinctorium* [see farther on].

See also the *Rh ya*, 178, *ma lan*.

The Chinese dyeing drug which in commerce goes under the name of *Indigo* [Reports on Trade of the Chinese Maritime Customs] is yielded by distinct plants in different parts of China. The blue dye-stuff properly called Indigo is prepared from the leaves of *Indigofera tinctoria*, L., a leguminous shrub cultivated from immemorial times in India and the warmer parts of Asia. *I. Anil*, L., a larger plant, also generally cultivated in warm countries for the production of indigo, is supposed to be of American origin. The late Dr. Hance wrote me that this species is frequently seen in Southern China. Loureiro [*Flora cochin.*, 560] mentions *I. tinctoria* as cultivated in South China under the names *lan tsao*, *ta cim* (*ts'ing*). As the true Indigo plant is a tropical species, it is never met with in the northern part of China. I am not aware how far to the north its cultivation in China extends.

Polygonum tinctorium mentioned by Loureiro [*l. c.*, 297] as a plant yielding Indigo at Canton, is grown also in the northern provinces, especially near Peking, where it is called *lan*. Debeaux [*Flore de Changhaï*, 52] found it cultivated near Shanghai. This plant is a native of China and is grown,

it seems, all over the empire. It is also cultivated in Japan, but, as MIQUEL (quoted by SIEBOLD) states, it was introduced from China.

A third Chinese Indigo plant is the *Isatis indigofera* of FORTUNE, a cruciferous plant, first observed by that meritorious traveller in the vicinity of Shanghai, where he found it cultivated as a tinctorial plant under the name of *tien ching*. It seems to me that F. has reversed the name, and that 青靛 *ts'ing tien* [*v. infra*] is meant. According to Mr. HEMSLEY [*Index Flora sin.*, 49] FORTUNE's plant is only a variety of our common European Dyer's Woad, *Isatis tinctoria*, L.

Lastly, FORTUNE describes an acanthaceous plant extensively cultivated in the Chekiang Province for producing indigo. This is the *Strobilanthes flaccidifolius*, Nees., grown also near Canton and in Assam. Mr. BULLOCK [letter 1881] saw it near Pakhoi. This is FORTUNE'S *Ruellia indigotica*.

P., XVI, 74, *lan*. An author of the 7th century quoted, who states that there are three kinds of *lan* in China from which the 藍澱 *lan tien* or Indigo is extracted (the second character is more generally written 靛 *tien*) one is the 木藍 *mu lan* or tree *lan*, the second the 菘藍 *sung lan* or cabbage *lan*, the third the 蓼藍 *liao lan* or *Polygonum lan* [comp. above 366].

The *mu lan*, said in *P.* to be cultivated in the southern provinces, is, it seems, *Indigofera*. The *Phon ts'o*, XIX, 17, figures under 木藍 or 藍澱 *Indigofera tinctoria*. LI SHI-CHEN describes the *mu lan* as a leguminous plant with leaves resembling those of the *Sophora*: pale red flowers, succeeded by pods one inch and more long.

The *sung lan* or cabbage *lan* is *Isatis*. It has the same Chinese name in Japan. *So moku*, XII, 45, 菘藍 or 江南大青 (the great blue of the Chinese province Kiangnan) is, according to FRANCHET, *Isatis japonica*, Miq.

The *liao lan* of ancient authors is *Polygonum tinctorium*. Lour. It is figured under *lan* in *Ch.*, XI, 12, recto. *So moku*, VII, 77, and *Phon zo*, XIX, 16, 藍 *Polygonum tinctorium*, japonice *ai*.

We read in Thunberg's *Flora japonica* [166] *Polygonum chinese*, L., japonice *ai*, and *itadori*. Planta est cœruleo-tinctoria instar Indigo . . . . *P. barbatum* et *aviculare* eundem in finem ;—and in Siebold's *Syn. plant. œcon. jap.* [106] *Polygonum chinense*, 藍, japonice *ai*. Herba tinctoria maxime in Japonia usitata. Neither Thunberg nor Siebold mentions *P. tinctorium*, which, however, as we know from various sources, is much cultivated in Japan for its indigo. I therefore suspect that the *P. chinense* of Thunberg and Siebold may be *P. tinctorium*.

I am not prepared to say what tinctorial plant with serrate leaves is figured under *lan* in *Ch.*, XI, 12, verso.

I have no doubt that the *lan* of the Classics was *Polygonum tinctorium*, which nowadays seems to be the most important of the Chinese Indigo plants. The *Hia Calendar* by *liao lan* doubtless means this plant. *Indigofera* is out of the question, for it is a tropical or subtropical plant, not indigenous to China. *P.*, XVI, 76, quotes an author of the 10th century who states that the 青黛, *ts'ing tai*, which is the true Indigo, was introduced into China from Persia.

E., 105 [*v. supra*, 178]. *S.*, I, 34.

Jap., 1170, *Isatis japonica*, Miq., 菘藍.

393.—茹藘 *ju lü* is the name of a plant mentioned in the *Shi king*. Legge translates correctly madder plant.

Shi king, 142 :—Near the level ground at the east gate is the madder plant on the bank. 146 :—Madder-dyed coiffure. 382 :—Character 䫜 *mei*, which means madder-dyed. According to the *Shuo wen* this is also a name for the madder plant. In the *Shi king*, by this term madder-dyed knee-covers are meant.

The *ju lü* is noticed in the *Rh ya* [22], where also other names are given.

Lu ki :—The *ju lü* [other names quoted from the *Rh ya*] is also called 地血 *ti hüe* (earth's blood). The people in 齊 Ts'i (Northern Shantung) call it 茜 *ts'ien*, in 徐州 Sü chou (Northern Kiangsu) it is 牛蔓 *niu mang* (ox creeper). Now the people cultivate it in gardens.

The plant *ts'ien*, with which the ancient commentators identify the *ju lü* of the *Shi king*, is the *Rubia cordifolia*, L., a common plant in the northern and central provinces of China. The root is used as a red dye in China and Japan like the root of our madder plant, *R. tinctorum*, L.

P., XVIII*b*, 19, *ts'ien*. Good drawing of the plant in *Ch.*, XXII, 20.

Amœn. exot., 912 :—茜 *Sen*, vulgo *akanni*. Herba spithamalis, vel pedalis, ramosa, procumbens, radice fibrosa, densa, foliis Nummulariæ, infectoribus pro colore serviens.

The same Chinese and Japanese name (*akane*) in Siebold's *Syn. plant. œcon. jap.*, 332, is applied to *Queria trichotoma*, Thunberg. Adhibetur Rubiæ nostratis adinstar tinctoria. But *Queria trichotoma* of Thbg., is, according to Maximowicz, *Wickstromia japonica*, Miq. I suspect Siebold was mistaken, all the more as the *So moku* II, 64, and the *Phon zo*, XXIX, 18, both figure under 茜草, japonice *akane*, *Rubia cordifolia*.

V. supra, 22. *Jap.*, 1930, *Rubia cordif.*, var. *mungista*, Miq., 茜草, 金線草.

394.—As has already been noticed [392] there is a passage in the *Chou li* stating that the superintendent of the plants used for dyeing is obliged to gather these plants in spring and in autumn.

Cheng Hüan says that the following plants are meant :—

1.—The 茅鬼 *mao shou* which is mentioned in the *Rh ya* [22]. The same as *ju lü* or *Rubia* already spoken of.

2.—The 蒿蘆 *t'o lu* (Biot reads *ki liu*). *K.D.* writes 索蘆 *so lu*. These names are not found in *P.*

3.—The 豕首 *shi shou* (pig's head). This is mentioned in the *Rh ya* [35] where perhaps *Carpesium abrotanoides* is intended. But that is not a tinctorial plant.

4.—紫茢 *tsz' lie*. [Comp. the *Rh ya*, 142]. This is *Lithospermum erythrorhizon*, S. & Z.

To these four names other commentators add two more, viz :—

5.—藍 *lan* (Biot writes *lien*), Indigo plants [*v. supra*, 392].

6.—The 皂彙斗 *tsao siang tou*, used for dyeing a black colour. These are cupules of the acorns of oaks [*v. infra*, 534].

VI.—*Water Plants.*

395.—The beautiful Lotus plant, the *Nelumbium speciosum*, Willd., is spoken of in the *Shi king*. Compare regarding its ancient names and names for various parts of the plant, the *Rh ya*, 99, 100, 191.

Shi king, 137 :—In the marshes is the Lotus flower 荷華 *ho hua*. 213 :—By the shores of that marsh there are rushes and Lotus flowers (*ho*). In the same ode, farther on, we have Lotus flowers 菡萏 *han tan* [Legge explains unopened flowers of the Lotus].

Lu ki gives the following account of the plant [for the Chinese characters see above, 99, 100, *Rh ya*] :—

The *ho* is also called *fu kü*. The former name is usual in Kiangtung. Its stem is called *kia*, the leaves *hia*, the part of the plant below the leaves is 白蔤 *pai jo*, the unopened flower *han tan*, the expanded flower *fu kü*. Its fruit is *lien*. The green skin of the seed receptacle is 蓏 *li*. The white

seed is *ti*. In the centre of the seed there is a small green hook (the plumule) which is called *i* and is very bitter, whence the proverb "bitter as a plumule of the Lotus-seed." In the fifth month the seeds begin to form. The unripe tender seeds are eaten. In autumn the *lien* or receptacle is getting black, and then the ripe seeds are ground into meal, which is used for food like millet. It is nourishing, strengthens the body. It is also eaten boiled into gruel. It is especially useful to the people of 幽州 Yu chou (Northern Chili), 揚州 Yang chou (Anhui, Chekiang), and 豫州 Yü chou (Honan), in time of dearth. The root stock is called *ou*. In Yü chou the people call it 光旁 *kuang p'ang*; it is shining like an ox-horn.

Li sao, 19 :—J'ai séché des feuilles du nénuphar (荷) pour orner mes vêtements supérieurs, j'ai amassé des fleurs d'Althæa (芙蓉) pour orner mes vêtements inférieurs. I may observe that *fu yung* in ancient times was not Althæa but another name for the Lotus flower [*c. supra*, 99, 101].

Nelumbium speciosum is extensively cultivated throughout the Chinese Empire. At Peking the people eat the fresh seeds and cook the arrowroot obtained from the root stock into a jelly which is considered very wholesome.

Of the ancient terms applied to the plant and parts of it, only three are still in use. The flowers are called 連花 *lien hua*, the leaves 荷葉 *ho ye*, the root stock is 藕 *ou*, the flour obtained from it 藕粉 *ou fen*.

P. XXXIII, 16, *lien ou*. The plant is figured under the same name in *Ch.* XXXII, 9, and in the *Kiu huang*, LVIII, 22.

Amœn. exot., 880, 蓮 *ren*. Nymphaea indica, sive Faba aegyptiaca Prosp. Alp. Planta paganis sacra . . . . Radix praelonga, in transversum extensa, brachii crassitie, ex longis intervallis geniculata. SIEBOLD, *Syn plant. œcon. jap.*, 96, *Nelumbium speciosum*, 蓮. Flos idolis oblatus. Radices crebrum obsonium. Semina edulia.—*So moku*, X. 9, 10.

V. supra, 99. *Jap.*, 1490, *N. speciosum*, Willd., **蓮**.
Jap., 1502, *Nymphæa tetragona*, Georg., **睡蓮, 午蓮**.
„ 1501, *Nuphar japonicum*, DC., **萍蓬草**. [Comp. *supra*, 113.]

396.—Another interesting and conspicuous plant of the order of Water-lilies, the *Euryale ferox*, Salisb., has, like the Lotus, been cultivated throughout China from remote antiquity. Its farinaceous seeds are used as food by the natives. The whole plant is covered with prickles; large leaves with prominent spiny veins. The popular Chinese name of the plant is **雞頭** *ki t'ou* (cock's head). This name is very fitting; the long, thin, persistent, closely cohering segments of the calyx enclosing the ovary, indeed resemble a cock's head. The classical name of the plant is **芡** *k'ien*. It appears only once in the *Chou li* [I, 108]:—Offerings. Les paniers supplémentaires sont remplis avec des châtaignes d'eau, des fruits de la plante *kien*, etc. CHENG SZ'-NUNG comments *ki t'ou* (cock's head).

The *k'ien* is not mentioned in the *Rh ya*, but is noticed in the *Fang yen* [1st century B.C.] The common Chinese names are given there as *k'ien* and *ki t'ou*. In **北燕** Pei yen (Northern Chili) it is also called **蔮** or **蔤**. These characters are not found in *K.D.*, but are probably the same as **蔮** *wei* or *yi* given in the *Kuang ya* as a synonym for *k'ien*.

P., XXXIII, 27, *k'ien*. Figured in the *Kiu huang*, LVIII, 23, and in *Ch.*, XXXII, 10, (tolerably well represented).

Euryale ferox is also cultivated in Japan. *Amœn. exot.*, 900, **芡** *iken* vulgo *midsubaki*. Nymphæa folio Populaginis, longis villis hirsuto; fructu surrecto magno turbinato, instar strobuli squamato et villoso. *Phon zo*, LXXVI, 5, **芡實** (the second character means fruit). *Euryale ferox*.—[See also HOFFM. & SCH., 236.]

E., 99, family **芡**, with good figure of *Euryale* and 11 names. *S.*, XI, 23. *Sm.*, 95. *Jap.*, 929.

397.—A third water-plant cultivated for its edible seeds, and which grows plentifully in the lakes and rivers of China—the water-caltrop, *Trapa*—is mentioned in the Ritual Classics under the name of 菱 *ling*.

Chou li, I, 108 ["Offerings"] :—Les paniers supplémentaires sont remplis avec des châtaignes d'eau (*ling*. Cheng Sz'-nung explains it by 芰 *k'i*) des fruits de la plante *kien*, etc.

Li ki, I, 461 ["Diet of the Ancient Chinese"] :—*Ling* mentioned among the fruits eaten. [See *infra*, 484. note.] Cheng Hüan comments *ling k'i*.

The plant is mentioned in the *Rh ya* [124].

Li sao, 19 :—J'ai séché des feuilles de la châtaigne d'eau (芰) et du nénuphar pour orner mes vêtements supérieurs.

The *Shuo wen* explains *ling* by *k'i* and says that the latter character is the same as 蓼 (pronounced also *to*).

The *Wu ling ki*, quoted in the *Yu yang tsa tsu* [9th century] says that the fruit with three horns is called *k'i*, that with two is *ling*.

The *Ts'i min yao shu* [5th century] calls it 菱秋 *ling ts'iu*. At Peking the common name for the water-caltrop is now 菱角 *ling küe*, the second character meaning horn, in allusion to the horns at the top of the fruit.

P., XXXIII, 26, 芰實 *k'i shi* (*k'i* fruit) also *ling*, *ling küe*. Su Sung [11th century] distinguishes two kinds of *ling*, with two and with four horns. Li Shi-chen gives a good description of the plant.

Drawings in the *Kin huang* [LVIII, 10] under *ling küe* (plant recognizable), and in *Ch.*, XXXII, 19, good figure.

The water-caltrop cultivated at Peking is the *Trapa bispinosa*, Roxb., which is found also in Kashmir. Loureiro [*Flora cochin.*, 86] mentions the *Trapa chinensis* cultivated at Canton. Linnæus described a water-caltrop received from Canton as *T. bicornis*. Henry [*l.c.*, 243, 244] :—In

Ichang *ling käe* is *Tr. bispinosa*. In the *Index Floræ sin.* [p. 311] all the Chinese species of *Trapa* are referred as varieties to *Tr. natans*, L.

Amœn. exot., 817, 菱 *rijuu*, vulgo *ris*. Tribulus aquaticus. *So moku*, II, 53, 芰 japonice *hissi*. *Trapa bispinosa*, Roxb.

V. supra, 124. *Jap.*, 2218.

398.—A water-plant termed 莓 *mao* in the *Shi king* (the character is also written 蒚 and 蒡) is called mallow or water-mallow by LEGGE. He says it is probably another name for one of the duck-weeds: according to WILLIAMS an aquatic vegetable like mallow.

Shi king, 616:—Pleasant is the semi-circular water (surrounding the college) and we will gather the *k'in* [*r.* 370] the *tsao* [*r.* 401] and the mallows (*mao*) about. MAO explains *mao* by 鳧葵 *fu k'ui* (duck-mallow).

Chou li, I, 109 ["Offerings"]:—Les terrines de la cérémonie du matin sont remplies avec de l'ail mariné (other vegetables and meats enumerated) . . . . et avec des marinades de grande moutarde [*r.* 361] et de la plante *mao*. CHENG SZ'-NUNG thinks that 茅 *mao* [*r. infra*, 459] is to be understood, the young sprouts of which are eaten. But the other commentators do not assent to this interpretation and identify the plant in question with *fu k'ui*. The *mao* was one of the seven vegetable pickles [*r. supra*, 376, note].

The *mao* is also mentioned in the *Shan hai king*. KUO P'O identifies it with *fu k'ui*.

LU KI:—The *mao* resembles the *hing ts'ai* [see the next]. The leaves are round like a hand, of a red colour, succulent and slimy, they slip between the fingers. The stalks are long. The plant can be eaten raw or cooked. The people of Kiangnan call it 蓴菜 *shun ts'ai* (*shun* vegetable) also 水葵 *shui k'ui* (water-mallow). It is a common plant in pools and rivers.

P., XIX, 24, *shun*. The figure in *Ch.*, XVIII, 14, a water-plant with peltate leaves.

SIEBOLD, *Syn. plant. œcon. jap.*, 207, *Villarsia peltata* 蓴 *tjun sai*, Herba mucilaginosa in juseulis magni estimata.

According to FRANCHET & SAVATIER [*Enum. Pl. Jap.*, I, 25], the plant figured in the *Phon ts'ao* [XXXIV, 10] under 莼 or *djioun ts'ai* is not *Villarsia peltata* (= *Limnanthemum peltatum*, Griseb., order *Gentianaceæ*), but *Brasenia peltata*, Pursh., a water-plant, order *Nymphaceæ*, found also in North America and India. [See *Botan. Mag.*, tab. 1147.] It was first called *Hydropeltis purpurea*. The whole plant is coated with a gelatinous substance. It is the *Menyanthes nymphoides* of THUNBERG [*Flora jap.*, 82]. In the *Amœn. exot.* [82] the above Chinese and Japanese names are erroneously referred to a *Sagittaria*.

This plant has not yet been met with in China by European botanists, but the drawing in *Ch.* may well represent *Brasenia*, and the above early description of it by LU KI agrees.

E, 65, family 蓴. Figure probably a *Nymphæaea*, but different from *P.*, XIX, 24.

Mao is also a synonym of 女菀. *E.*, 130.

Jap., 372, *Brasenia peltata*.

399.—The water-plant 荇菜 *hing* (*hang*) *ts'ai* (the first character is also written 荇, according to the *Shuo wen*) mentioned in the first ode of the *Shi king*, has been erroneously identified by LEGGE with the duck-weed, *Lemna minor*.

Shi king, I:—Here long, here short is the duck-weed (*hang ts'ai*), to the left, to the right, borne about by the current.

LEGGE says:—The *hang ts'ai* is described (by CHU HI) as growing in the water, long or short, according to the depth, with a round reddish leaf, which floats on the surface and is

rather more than an inch in diameter. Its flower is yellow. It is very like the *shun* [see the preceding] which MEDHURST calls the marsh mallow, but its leaves are not so round, being a little pointed.

This plant is mentioned in the *Rh ya* [47] *hing* or *tsie yü*.

LU KI :—The *hing* or *tsie yü* has a white stalk. The leaves are of a purplish red colour, they are orbicular (peltate), more than an inch in diameter. They float on the surface of the water; the root is at the bottom, short or long according to the depth of the water. The upper part is green, the inferior part white. The people eat the white stalks. They are also steeped in bitter wine.

At Peking *hang ts'ai* is *Limnanthemum nymphoides*, Link., an aquatic *Gentianaceæ* with sub-orbicular floating leaves and yellow flowers.

P. XIX, 23, *hang ts'ai*. Some ancient authors identify it with the *jü k'ui* [see the preceding]. Figured in the *Kin huang*, LIII, 25, and *Ch.*, XVIII, 15.

Amœn. exot., 菪 *kjoo* and *koo*, vulgo *asasa*, Nymphæa folia Thoræ valdensis. *So moku*, IV, 15, 菪菜 *dsa dsa*, *Limnanthemum nymphoides*.

V. supra, 47. *Jap.*, 1283.

400.—The 蘋 *p'in* is another aquatic plant mentioned in the *Shi king*. LEGGE says it belongs to the same species of aquatic plants as the *hang ts'ai*. The *Pen ts'ao* says :—There are three varieties of it, the large called *p'in* the small 浮萍 *fou p'ing* and the middle *hang ts'ai*. MAO makes the *p'in* the large variety, while CHU HI and some others make it the third. The *p'in* may be eaten, says YEN TSAN, but not the *fou p'ing*. *P'in* is probably *Lemna trisulca* [LEGGE].

Shi king, 25 [Ode devoted to the *p'in*] :—She gathers the large duck-weed (*p'in*). See the *Rh ya*, 113, 114, 萍 or 荓 *p'ing* the smaller, *p'in* the larger kind.

Lu ki :—The *p'in* belongs to the plants on the surface of the water which we call *fou p'ing*, floating *p'ing*. The smaller kind is called 萍 *p'ing*. In the middle of spring it begins to grow. It is eaten cooked with soup. It is also steeped in bitter wine.

P. XIX, 21, 蘋 *p'in*, also **四葉菜** *Sz' ye ts'ai*, four-leaved vegetable, **茅菜** *fou ts'ai* and **田字草** plant (with leaves disposed) like the character **田**. *Ch.*, XVIII, 6, depicts, under *p'in*, a water-plant with leaves disposed in a cross, evidently a *Marsilea*, probably *M. quadrifolia*, L.

The *Phon zo* [XXXIV, 3] represents under 蘋, also **水鼈** (water-turtle), *Hydrocharis morsus rane*, L., a small floating aquatic plant with stalked, kidney-shaped leaves and flowers with three delicate petals. The same Japanese work figures [*l. c.*] under the Chinese name **田字草**, *Marsilea quadrifolia*. It seems that the Chinese also confound these two plants under the same names, for some of the ancient authors quoted in *P.* say that the *p'in* has white flowers. This does not agree with *Marsilea*, which is an aquatic pseudofern, and has no flowers. Besides this, *Ch.* XVII, 36, figures under **馬尿花** *ma niao hua* or **茅菜** *fou ts'ai* [*v. supra*, *P.*, synonym of *p'in*] *Hydrocharis morsus rane*.

As to the 洴 or 萍 *p'ing*, which the *Rh ya* calls the smaller kind, this is mentioned in the Ritual Classics. Legge translates correctly duck-weed.

In the *Chou li* [II, 380] we have the **萍氏** *p'ing shi*. Préposé aux plantes flottantes. Commentator B. (Cheng Hüan) :—Il recueille les plantes qui flottent, telles que les lentilles d'eau.

Li ki, I, 262 [*Yüe ling*] :—Last month of spring, duck-weed (*p'ing*) begins to grow.

P. XIX, 18, **水萍** *shui p'ing* or **浮萍** *fou p'ing* (floating *p'ing*), same as the *p'ing* of the Classics. The plant repre-

sented under these names in *Ch.* XVIII, 5, is no doubt duck-weed, *Lemna*. At Peking *Lemna minor* is called *fou p'ing*.

Aman. exot., 900, 萍 *fe*, vulgo *ukingusa*, *i.e.*, herba natans. Lenticula palustris vulgaris. *Phon zo*, XXXIV, 1, 水萍 *Spirodela* (*Lemna*) *polyrhiza*, SCHLEID.

V. supra, 113, 114. The figures of *E.* do not agree with those of *P.*, XIX.

Jap., 1241, *Lemna minor*, L., 浮萍. This name also for *Salvinia natans* in Szechuan.

„ 1242, *Lemna trisulca*, L., 品藻苔.

„ 1112, *Hydrocharis asiatica*, Miq., 水鼈.

„ 2133, *Spirodela polyrhiza*, Schl., 紫背浮萍.

„ 1501, *Nuphar japonicum*, DC., 萍蓬草.

401.—The character 藻 *tsao* occurs frequently in the Classics. LEGGE translates it by pond-weed, tussel-pond weed or *Ruppia rostellata*, sometimes by duck-weed. Comp. also *W.D.*, 953, *Valisneria*, *Hippuris*. This character means also elegant fine composition, because the leaves of the *tsao* plant are fine and pretty.

Li ki, II, 34 :—The capitals of the pillars in the grand temple with hills carved on them, and the pond-weed *(tsao)* carving on the small pillars. The same see CONF. *Anal.*, 43.

Shi king, 25 :—She gathers the pond-weed *(tsao)* in those pools left by the flood. 400 :—The fishes among the pond-weed [title of an ode]. 617 :—Pleasant is the semi-circular water (surrounding the college), and we will gather the *k'in* [*c.* 370], the *tsao* and the mallows [*c.* 398] about.

Shu king, 80 :—*Tsao*, a water-plant, duck-weed, one of the emblematic figures of the lower sacrificial robe of the Emperor.

LU KI :—The *tsao* is a water-plant. It grows at the bottom of the water. There are two kinds. One of them has leaves like those of the 雞蘇 *ki su* (a labiate plant). The stem is as thick as a quill, from four to five feet long. The stem of

the other kind is as thick as a hair-pin; its leaves resemble those of the 蓬蒿 *p'eng hao* (*Chrysanthemum coronarium*). This is called 聚藻 *tsü tsao* (tufty *tsao*). The people of 扶風 Fu feng (in Shansi) say that it emits a sound. Both kinds of *tsao* are eaten. When cooked they lose their unpleasant smell. They are boiled with flour, and furnish a relishable dish. In Yang chou, in time of dearth, the *tsao* plant serves as a substitute for corn.

Both MAO and CHU HI identify the *tsao* of the *Shi king* with the *tsü tsao*.

P., XIX, 26, treats of these plants under the head of 水藻 *shui tsao*, fresh water *tsao* (for there is also a *hai tsao* or sea *tsao*). The ancient authors quoted there call the larger kind 馬藻 *ma tsao* [see the *Rh ya*, 111]. It is said to have opposite leaves resembling those of purslane, two or three inches long. The other kind, the *tsü tsao*, has fine slender leaves resembling raw silk, others says the gills of a fish, and are arranged in whorls around the stem.

Ch., XVIII, 23, represents under *tsao*, also called 札草 *cha ts'ao*, a *Myriophyllum*. At Peking *cha ts'ao* is the popular name for *M. spicatum*, L.

The above-noticed metaphorical meaning of the character *tsao*, "elegant composition," is derived, it seems, from the elegant pinnatifid capillary leaves of the *Myriophyllum* or Water Milfoil.

The *Phon zo* [XXXIV, 12] figures under 馬藻 a pond-weed, *Potamogeton crispus*, L., and under 聚藻 *Myriophyllum spicatum*, L.

V. supra, 111. *Jap.*, 1470–1472, three *Myriophylla* without specific Chinese names.

Jap., 2403, *Zostera marina*, L., (Naj.) 大葉藻.
" 1742, *Potamogeton oxyphyllus*, Miq., 馬藻.
" 556, *Ceratophyllum demersum*, L., 聚藻.
" 1743, *Potam. polygonifolius*, Pourr., 眼子菜.
" 1984, *Salvinia vulgaris*, Mich., 槐葉蘋.

VII.—*Various Herbaceous Plants.*

402.—卉 *Hui*, in the Classics, is a general name for herbaceous plants. [See the *Rh ya*, 30.]

Shi king, 264, 266 :—The plants and trees (卉木 *hui mu*) grow full of verdure. 357 :—The autumn days become cold and the plants all (百卉 *po hui*) decay.

Shu king, 108 ["Tribute of Yü"] :—The wild people of the island brought garments of grass (卉服 *hui fu*).

403.—勺藥 *Sho yo*, a plant mentioned in the *Shi king*. 148 :—Gentlemen and ladies presenting one another with small peonies (*sho yo*). MAO explains, that it is a fragrant plant.

The *sho yo* is also mentioned in the *Shan hai king*. KUO P'O identifies it erroneously with the 辛夷 *sin i*, which is a tree (*Magnolia*). The *Kuang ya* gives 蠻夷 *luan i* as a synonym for *sho yo*.

LU KI :—The *sho yo* is a medicinal plant, not fragrant. It is mentioned in the poems of SZ' MA SIANG JU [2nd century B.C.] and YANG HIUNG [1st century B.C.]

The *sho yo*, or, as the name is pronounced in the north, *shao yao*, is still the name for *Paonia albiflora*, Pall., a common plant in the mountains of North China, also much cultivated in gardens. The root is in great repute as a medicine. The first character of the name is now generally written 芍.

P., XIV*a*, 18. *Ch.*, XXV, 16, good drawing.

Amœn. exot., 862, 芍藥 *saku jaku*, item *kara jaukusa*. Paeonia communis seu fœmina, trifolio ramoso, flore sanguineo simplici. KÆMPFER notices two varieties. SIEBOLD, *Syn. plant. œcon. jap.*, 289, *Paonia albiflora* 勺藥 *sjak sjak*.

Colitur tam ob flores speciosos tam ob radicem qua in usum officinarum colligitur. *So moku*, X. 23, under above Chinese name, japonice *sjak jok*, *P. albiflora*.

E., 115, 116, family 芍藥, with good figure of *Paeonia albiflora*.

Sm., 169.

404.—鞠 *Kü* is an ancient form for 菊 *kü*, the well-known garden flower *Chrysanthemum sinense*, Sab.; the character is met with in the *Rh ya* [130] and in the Ritual Classics.

Li ki, I, 291 [*Yüe ling*]:—Last month of autumn. Chrysanthemums show their yellow flowers. (Chrysanthemums in China flower late in autumn and in winter). *Chou li*, II. 390:—Le préposé aux grenouilles est chargé d'éloigner les grenouilles et les crapauds. Il brûle des plantes *khieou* de l'espèce mâle (牡鞠), il les asperge avec les cendres de ces plantes et alors ces animaux meurent. Comm. B. (Cheng Hüan):—Le *khieou* mâle n'a pas de fleurs.

Calendar of the Hia, 105:—Ninth month. Become beautiful the Chrysanthemums. But the *kü* in 17, first month, is not, it seems, Chrysanthemum, as Douglas translates, but rather the name of a star, as the Chinese commentator explains.

In the *Shan hai king* the common character 菊, for Chrysanthemum, occurs.

P., XV, 1:—*Kü*. Drawings, *Kin huang*, LIII, 20. *Ch.*, XI. 1, 2. *Amen. exot.*, 875, 菊 *kik*, *kiku*, *kikku*, *i.e.*, Matricaria, huic etiam *kauara jamogi* dicta (*jamogi* Artemisiam significat). Cujus cum sylvestris tum praecipue hortensis, plurimæ sunt varietates. *So moku*, XVII, 18, 菊 *Chrysanthemum sinense*.

V. supra, 130.

405.—蒹 *Kien*. This name occurs twice in the *Shi king*. Mao defines it by 蘭 *lan*. Legge says that in the Japanese plates this plant plainly appears to be *Valeriana rillosa*.

Shi king, 148 :—Ladies and gentlemen are carrying flowers of valerian (*kien*). 214 :—By the shores of that marsh, there are rushes and valerian.

Li ki :—The plant *kien* in the *Shi king* is the same as the fragrant plant 蘭 *lan*. This latter is mentioned in the *Tso chuan*, also in the *Ts'u sz'*, *or Elegies of Ts'u* [by K'ü Yüan, 4th century B.C.] K'ung tsz (Confucius) says [probably in the *Kia yü*, *or Family Sayings of C.*], the *lan* is the fragrancy (fragrant flower) of the *king*. The stem and leaf are like those of the medicinal plant 澤蘭 *tse lan* (marsh *lan*). The joints are wide apart, and the stem between them is red, and it rises to a height of four or five feet. In the time of the Han, this plant was cultivated in the Imperial gardens. It was added to cosmetics, and was used also to preserve clothes and books from insects.

The *lan* is mentioned in the *Hia Calendar* [74, fifth month] :—Tenderly nurtured are the *Vanda* plants. I agree with Prof. Douglas in this identification of the *lan*.

Li ki, I, 458 :—If anyone give the wife an article of food and dress, a piece of cloth or silk, a handkerchief for her girdle, an *Iris* [*ch'i*, *v. infra*, 411] or *Orchid* (*lan*), she should receive it and offer it to her parents-in-law.

Tso chuan, 294 :—The *lan* is there called the most fragrant flower of the State. A legend reported regarding this flower and a Duke of one of the feudal states [B.C. 603].

Li sao :—The fragrant *lan* plant is frequently mentioned by K'ü Yüan [4, 10, 13, 19, 49, 55, 56, 58]. In 4, he speaks of the *ts'in lan* or autumn *lan*. The name of the *lan* flower appears frequently in the compositions of the ancient Chinese poets.

The account given of the *lan* in the *Rh ya i* is very obscure. It is said there to be a very fragrant plant which grows in the depths of forests. It resembles the *hui* [*see the next*] but differs from the latter in bearing only a single

flower on each stem, whilst the *hui* has five or six flowers on the same stem.

I can also make nothing of the descriptions of the *lan ts'ao* found in *P.* XIV*b*, 75. A number of synonyms are given there, and it seems the authors confound several quite different plants. *Ibidem*, 78, the 澤蘭 *tse lan* is spoken of.

In the *So moku* [XV, 55] 蘭草 is *Eupatorium chinense*, L., and, *Ibidem* [57] 澤蘭 is also a *Eupatorium*. The Chinese drawings in *Ch.* XXV, 1 and 13, under the above Chinese names, seem also to be intended for *Eupatorium*, a genus of the order *Compositæ*, of which six species are known in China. Although the flowers of *Eupatorium* exhale an odour which is not unpleasant, I do not believe that the famous perfume *lan* of the ancient Chinese can be referred to this plant. I agree with WILLIAMS that the *lan* must rather have been an orchidaceous plant, for even nowadays this name is applied to plants of this order, cultivated for the powerful fragrance of their flowers. Comp. BRIDGMAN's *Chrest.*, 452:—Air plant, *Aërides* and *Vanda* 吊蘭 *tiao lan* (suspended *lan*), 風蘭 *feng lan*. *See also* LOUREIRO, *Flora coch.*, 642:—*Aërides odorata*, found in the forests of China. HENRY [*l. c.*, 456]:—*Tiao lan* in Hupei *Dendrobium nobile*, Lindl. I am not aware whether this orchid is fragrant. But now the name *lan* is also extended to many other fragrant flowers. [See *W.D.*, 501.]

E., 81, family 蘭, with three figures, an orchid (not *aërides*), 澤蘭 an Umbellifera, and 馬蘭, *Jap.*, 294, *Aster trinervius*, Roxb., var. *congesta*, Fr. & S.

Jap., 913, *Eupatorium chinense*, L., 蘭草.

" 914, " *japonicum*, Thbg., 山蘭.

S., XII, 5. *Sm.*, 120.

406.—蕙 *Hui* is the name of another fragrant plant which occurs repeatedly in the *Shan hai king* and in the *Li sao*. KUO PO explains that it is a kind of *lan*, and that some say

it is the same as 薰 *hün*. The term *hui* is met with five times in the *Li sao* [6, 10, 15, 30, 55]. The *Kuang ya* identifies the *hui* and the *hün*.

The *Rh ya i* says the *hui* resembles the *lan*, it grows in the mountain forests, flowers in spring, earlier than the *lan*, bears from five to six flowers on the same stem. According to the *Kuang chi* [5th century] this plant has purple flowers. The Emperor Wu ti of the Wei dynasty [5th century] used this fragrant plant for burning.

The *hui* was probably also an orchid. [See *W. D.*, 264].

E., 84, family 蕙, with bad figure, apparently of a Labiate. The names of 407 are given here as synonyms. *Melilotus* [*v. supra*, 354].

407.—The 薰 *hün* is mentioned in the *Shan hai king*, where it is said that it is a fragrant plant resembling in smell the *mi wu* [*see* 89]. Its leaves resemble the leaves of hemp: square stem, dark red flowers. This plant worn in a girdle expels noxious influences. See also the quotation from the *Tso chuan*, regarding the character *hün* [*supra*, 85].

In *P.*, XIV*b*, 72, this plant is noticed under the names 薰草 *hün ts'ao* or 零陵香 *ling ling hiang* [*Ling ling*= present Yungchou-fu in Southern Human]. Li Shi-chen says that this was the fragrant plant the ancients used to burn, to make the spirits descend. No conclusion can be drawn from the vague descriptions of the plant as given by Chinese authors.

Ch., XXV, 60, figures under the above names a labiate plant. The author of that work says that this plant at Peking is known by the name of 矮糠 *ai kang*. But the latter is there the common name of *Ocimum basilicum*, L., *Basilic*, the leaves of which have a strong but pleasant aromatic smell.

The *Phon zo* [XI, 11] figures under 薰草 or 零陵香 *Melilotus arvensis*, Wallr., and the *So moku* [XIV, 16, 17]

草零陵香, *M. cærulea*, Lam., and *M. arvensis*. The latter Chinese name is taken from the *Kin huang* [LVIII. 20] where a rude figure of a trifoliate plant is given.

408.—鬱 *Yü* was the name of a fragrant plant which was mixed with the sacrificial wine called 鬯 *ch'ang* [*v. supra*, 349].

Chou li, I, 465 :—Officier des plantes aromatiques *yo* (鬱). Lorsqu'on doit faire des libations dans les sacrifices et aux réceptions des visiteurs étrangers, il effectue le mélange des plantes *yo* et du vin odorant (鬯). [Comm. B.] :—C'est la plante aromatique *yo kin*. On l'emploie pour aromatiser le vin des sacrifices.

Cheng Hüan's commentary says **鬱金香草** *yü kin hiang ts'ao*. (Biot reads *yü kin*, a fragrant herb). But it may also be translated the plant *yü kin hiang*. *Yü kin* and *yü kin hiang* are two different plants.

Li ki, II, 141 :—The mortar for the fragrant herbs (*yü*) in making sacrificial spirits (*ch'ang*) was made of cypress wood [桷 see the *Rh ya*, 225] and the pestle of *Dryandra* [梧 which is *Sterculia*, *l.c.*, 283, 516]. The ladle (for lifting out the flesh) was of mulberry wood.

Tubers received from China under the name of *yü kin* are figured in Hanbury's *Science Papers* [254]. He found that they belonged to a species of *Curcuma* or Turmeric. They had an aromatic odour.

P., XIV*b*, 52 :—*Yü kin*. The description given of this plant by several ancient authors agrees with *Curcuma*. Yellow root ; it is plainly stated that it is not fragrant. The plant resembles ginger, grows in Shu (Sz'ch'uan). The root is used for dyeing women's clothes. Drawing. *Ch.*, XXV. 37 (only leaves).

Sieb., *Syn. plant. œcon. jap.*, 100 :—*Curcuma longa*. L. 鬱金. *nkon*. Radix tinctoria, in provinciis meridionalibus Japoniæ colitur. E China introducta.

So moku, I, 4, same Chinese name, *C. longa*, var. *macrophylla*, Miq.

In *P.* [*l.c.*, 67] an obscure account is given of the plant called *yü kin hiang*. It is there said to be a foreign plant of Western Asia or India with fragrant flowers. The Buddhist priest HUEN THSANG mentions it in the mountains of Hindukush and in Kashmir [BEAL'S *Si yu ki*, I, 54, 120, 148; II, 125].

The two plants *yü kin* and *yü kin hiang* are sometimes confounded by Chinese authors. *Yü kin hiang* is not *Curcuma*, as Dr. EITEL in his *Handbook of Chinese Buddhism*, states, but an entirely different plant. WILLIAMS [*Dict.*, 1139] thinks that this name denotes the Sumbul root. The drawing of the plant in *Ch.*, XXV, 38, seems to be a product of imagination. The *Phon zo* figures [XI, 5, 6, 7] under 鬱金香, several plants, an *Iris* and *Tulipes*, it seems.

The Chinese commentators seem to agree that the plant *yü* of the Classics was the *yü kin*, not the *yü kin hiang*. The *Rh ya i* quotes a passage from the *Shi king* [445] where the sacrificial wine is called 黃流 *huang liu* (yellow liquid) and explains this name by the yellow colour of the curcuma root.

E., 163, family 鬱金, figure may be of *Curcuma*. The figure to *P.*, XIV*b*, differs widely.

Jap., 719 [*v. supra*, 379].

409.—The character 芸 *yün* occurs in the Classics with different meanings. In the *Shi king* [384, 423] we have 芸其黃, which LEGGE translates, according to MAO's and CHU's interpretations, by (flowers) of a deep yellow. In the CONF. *Anal.* [199] *yün* stands for 耘 (to weed). In MENCIUS it has the same meaning. But the principal meaning of the character *yün* seems to refer to a fragrant plant, and in this sense we find it in the *Hia Calendar* and in the *Li ki*. DOUGLAS translates *yün*, on the authority of WILLIAMS, by rue, LEGGE by rice,

Hia Calendar, 16 :—First month is picked the rue. 35 :—Second month, beautiful is the rue.

Li ki, I, 304 [*Yüe ling*] :—Second month of winter. Rice (*yün*) begins to grow. The Chinese commentator explains *yün* in this passage by fragrant plant. I cannot understand why LEGGE makes it to be rice.

The *Rh ya i* says regarding the *yün* :—It is a kind of pea (*uan tou*) ; its leaves are very fragrant. In autumn they are mealy white. The people in the south put the *yün* plant under their mats and in books to drive away insects. Now it is called 七里香 *ts'i li hiang* (seven *li* fragrance).

[Comp. also the *Rh ya*, 146.]

410.—芷 *Chi*. A fragrant plant growing in deep valleys, mentioned in the *Li sao* [4, 10, 55]. The Chinese in ancient times used to wear this, together with other odoriferous plants, in their girdles. The name of a plant 蒘 *yo* occurs several times in the *Shan hai king*. KUO P'O says it is the 白芷 *pai chi* ; the *Kuang ya* says the leaves of the *pai chi*. In *W.D.* [1116] this character (*yo*) is given as an equivalent for 藥 (medicinal herb).

According to *P.* [XIV*a*, 14] *chi* is the same as the plant now called 白芷 *pai chi* (white *chi*), mentioned as a fragrant medicinal plant in the *Pen ts'ao king*. It is also called 芳香 *fang hiang*. The very white aromatic root is used as a medicine.

Ch. [XXV, 8] figures under *pai chi* a large umbelliferous plant. PARKER [*China Rev.*, X, 299] states that the *pai chi* is widely cultivated in Sz'ch'uan. PORTER SMITH [*Chinese Materia Medica*, 120] identifies it erroneously with *Iris florentina*, as also does WILLIAMS.

SIEBOLD, *Syn. plant. œcon. jap.*, 253 :—白芷 or *bidjakusi*. *Selinea ?* Colitur in usum officinarum. [Compare drawing

under the same Chinese name in the *Pʻhon zo*, IX, 10, 11]. An umbelliferous plant.

The *pai chi* may be an *Angelica*.

E., 157, family **白芷**, with good figure of *Angelica anomala*. 411 is a synonym.

C., 940. *S.*, II, 29. *Jap.*, 166.

Other *Angelicas* are mentioned *Jap.*, 168, *A. decursiva*, Miq., **前胡**.

Jap., 170, *A. inæqualis*, Max., **獨活**. 171, *A. kiusiana*, Max., **藁草**.

411.—**蔵** *Chʻi*. This is likewise a fragrant plant mentioned in the *Li sao* [6, 13, 15] as worn in a girdle together with other perfumes. In the *Li ki* [I, 458] this plant is noticed together with the *lan*. LEGGE identifies it erroneously with *Iris*. [See the quotation, *supra* in 405.]

The *Shuo wen* says:—The *chʻi* has several names. In **齊** Tsʻi (Northern Shantung) it is called *chʻi*, in **晉** Tsin (Southern Shansi) it is **蘠** *hiao*, in **楚** Chʻu (Hukuang) it is called **蘼** *li*. The name *hiao* occurs also in the *Shan hai king*. Kuo Pʻo explains it by fragrant herb.

P. makes the *chʻi* to be the same as the *pai chi* [see the preceding], and identifies it also with the plant mentioned in the *Rh ya* [98], but that seems to be a mistake.

412.—**江蘼** *Kiang li*, a plant mentioned in the *Li sao* [4, 58]. *Li* des rivières, plante aromatique. In *W.D.* [517] *kiang li* is translated by water-grass, sedge, referring probably to the *Rh ya* [98]. But the *Shuo wen*, and the ancient commentators on that Dictionary, identify it with the plant noticed in the *Rh ya* [89] *mi* (*mei*) *wu*.

P., XIV*a*, 5, 9. The ancient authors quoted there state that **蘼蕪** *mi wu* or *kiang li* are names applied to the fragrant young leaves of the plant called **芎藭** *kung kʻiung* or **川芎** *chʻuan kung*, the root of which is used in medicine.

The best comes from Shu or Sz'ch'uan. Judging from the description of the Chinese authors, this is an aromatic umbelliferous plant, probably an *Angelica*. See the drawings in the *Kin huang* [XLVI, 31] and *Ch.* [XXV, 4]; umbelliferous plant.

There is a passage in the *Tso chuan* [315, 321] referring to the year B.C. 595:—Have you any spirits made from the hill-grass? The Chinese text has only 山鞠窮. The Chinese commentators say that the medicinal plant *kung k'iung* is meant, which is steeped in wine.

SIEBOLD, *Syn. plant. aeon. jap.*, 254:—芎藭 *Sen kjo. Selinea?* Colitur in usum officinarum. *So moku*, V, 2, under the above Chinese name, also 川芎, not determined. *Ibidem*, 2, 3, 大葉川芎 (large leaved *ch'uan kung*) *Angelica refracta*. [See also the *Phon zo*, IX, 3, 4.]

Synonym of *supra*, 89.

413.—藁本 *Kao pen* or 藁茇 *kao po*. Both these names occur in the *Shan hai king*. Kuo P'o explains them by fragrant herb.

P., XIV*a*, 12, *kao pen*, also 藁本香 *kao pen hiang* and other names. A plant much valued in ancient times for its fragrant root. It is said to resemble the *kung k'iung* [412], and we may therefore suppose that it is an umbelliferous plant. The rude drawings of the plant [*Kin huang*, XLVI, 24, and *Ch.*, XV, 19] may well represent a plant of that order. TATARINOW, *Catal. med. sin.*, 26, *kao pen*. Rad. Conii, *s.* Cicutæ?

So moku, V, 4, 藁本, *Nothosmyrnium japonicum*, Miq. This umbelliferous plant is found in Japan, but it has also been collected by Father DAVID in the Province of Kiangsi. See FRANCHET, *Plantæ Davidianæ*, I, 140.

Jap., 1500.

414.—杜衡 *Tu heng*, likewise a fragrant plant, mentioned in the *Shan hai king*. [See also the *Rh ya*, 156.]

P., XIII, 54, *tu heng*. The ancient authors describe it as a small plant, resembling the 細辛 *si sin*. It has roundish leaves resembling in shape a horse's hoof, violet flowers. Fruit of the size of a pea (bean). It contains small seeds. The fragrant root is used in medicine. The Taoists employ it for scenting clothes. The *si sin* is described *P.*, XIII, 51. The drawings of the *tu heng* and the *si sin* [*Ch.*, VIII, 27, and VII, 25] both represent species of *Asarum*. Loureiro, *Flora coch.*, 357, *Asarum virginicum*; sinice *si sin*. Habitat incultum in variis Sinarum provinciis. Henry [*l.c.*, 151]:— *Si sin* is at Ichang *Asarum Sieboldi*, Miq., and [152] 馬蹄香 *ma ti hiang* (horse's hoof fragrance), *Asarum* with large flowers.

So moku, IX, 5, 細辛 *Asarum Sieboldi*, Miq.; *Ibidem.* 8, 杜衡, *As. Blumei*, Duch.

Hoffm. & Schultes [324] apply erroneously the above Chinese names for *Asarum*, *tu heng* and *ma ti hiang*, to *Ligularia Kæmpferi*.

V. supra, 156. *Jap.*, 235, *Asarum Blumei*, Duch., 杜衡.
„ 236, „ *caulescens*, Miq., 隻葉細辛.
„ 237, „ *Sieboldi*, Miq., 細辛.

415.—薜荔 *Pi li*. Name of a plant mentioned in the *Li sao* [13]. Je fais des guirlandes avec les fleurs tombées du *pi li*. The *Rh ya i* says that this is the same as 薜荔 *pi li* in the *Shan hai king*, a plant which climbs on rocks and trees. When eaten it removes pain in the heart. Kuo P'o says it is a fragrant plant.

The name *pi li* in China as well as in Japan is applied to one or several creeping species of *Ficus*. See *P.*, XVIII*b*, 40, 木蓮 *mu lien*, which is another name for the plant: *Ch.*, XX, 3, the plant figured is probably *F. pumila*, L.

The Chinese name 薜荔 in Japan is given to *F. pumila*, according to Hoffm. & Schultes; to *F. erecta*, Thbg., in

Sieb., *Syn. plant. œcon.*, 173; to *F. nipponica*, Franchet, in Sieb. *icon. jap. ined.*, VII.

But the name *pi li* in the *Li sao* does not seem to refer to a *Ficus*, for the minute flowers of a fig are enclosed in the fleshy receptacle, and cannot therefore drop off as the text of the *Li sao* implies.

W.D. [675] says that *pi li* is an herb resembling celery or smallage, and that it is also one of the names for *Ficus pumila* in Formosa.

E., 142, family 薜荔, with figure probably of *Ficus pumila*.
Jap., 947, *Ficus nipponica*, Fr. & S., has this Chinese name.
„ 944, *Ficus carica*, L., 無花果, also in China.
„ 945, *Ficus erecta*, Thbg., 天仙果.
„ 951, *Ficus stipulata*, Thbg., 木饅頭.
„ 952, *Ficus Wightiana*, Wall., 榕樹.

416.—In the French translation of the *Li sao* [p. 47] we read :—J'ai cueilli l'herbe magique pour faire un sortilège avec les tiges de la plante *yaï*.

The magic herb in the Chinese text is 蕑茅 *k'iung mao*; the commentary says a fragrant herb. [Comp. the *Rh ya*, 72]. The *Shuo wen* identifies it with 蓀 *shun*, which is *Hibiscus syriacus* [*v. infra*, 542].

It is not clear what M. d'Hervey means by the plant *yaï*. Such a name is neither in the Chinese text nor in the commentaries. The text has 筳篿 *t'ing t'uan*, and the commentary explains, as I understand it, that *t'ing* means a small bamboo splinter, and *t'uan* in the country of Ch'u has the meaning to divine by means of knotting herbs (or the knotted herb) and bamboo splinters. [Comp. *K.D.*]

417.—荃 *Tsüan*. A fragrant plant mentioned in the *Li sao* [55].

The *Shuo wen* explains the character by 芥脆 (ground mustard), also name of a fragrant plant. According to the

Shi i ki [4th century] the 茎蕪香 *tsüan wu hiang* is a perfume. See *W.D.*, 1013.

E., 68, family 蒲, where *tsüan* is one of the 31 synonyms of *Acorus*. [*V.* 376.]

418.—宿莽 *Su mang*. *Li sao*, 3 :—Le soir je recueillais le *so mou* des ilôts (*mou* is a mistake in the translation for *mang*). See the *Rh ya*, 216.

419.—*Li sao*, 10 :—J'avais couvert les fossés et les lisières de mes champs de *lieou y*, 留夷 et de *kie tche* 揭車. The commentaries only say that both these names refer to fragrant plants. Regarding the *kie che* see the *Rh ya* [145]. See also *K.K.F.P.*, XCII, 7. The *Kuangchi* [5th century] says that the *kie che* has a pungent taste. It is several feet high, has white flowers. The *Hai yao Pen ts'ao* [8th century] states that it is found in the mountains of the island Hainan. It is offensive to moths and other insects. The people employ it to scent clothes.

420.—*Li sao*, 13 :—Je fais avec le *hou ching* 胡繩 de belles cordes d'une grande longueur. It is unknown what the *hu sheng* was. The name means foreign rope.

421.—*Li sao*, 23 :—Les (mauvaises) herbes *tse*, *lou* et *che* 蒔 remplissent le palais. Regarding the first two names *see* 427 and 461. The third (*shi*) is unknown.

422.—半夏 *Pan hia* (midsummer). This name occurs once in the *Li ki*. LEGGE calls it midsummer herb, a medicinal plant, white with round seeds, and of a hot and pungent taste.

Li ki, I, 274 [*Yüe ling*] :—Second month of summer. The midsummer herb is produced.

P., XVII*b*, 20, *pan hia*. A poisonous plant. The roots (tubers) used in medicine. Description not characteristic. Trifoliate leaves.

According to HANBURY [*Science Papers*, 262] who examined the Chinese drug *pan hia*, the small tubers sold in the apothecaries' shops of Shanghai under this name belong to *Pinellia tuberifera*, Tenore, an *Aroidea*. HANBURY figures the tubers. TATARINOW, *Catal. med. sin.*, p. 1, *pan hia*, *Radix Ari macrouri*, Bge., which is the same as *Pinellia tuberifera*. It seems to be a common plant in China. Leaves and tubers figured in *Ch.*, XXIV, 28, 30.

So moku, XIX, 2, 半夏, *Pinellia tuberifera*.

E., 136, family 半夏. Figure, copy of *S.*, IV, 3, a *Pinellia*, not *tuberifera*, but another undetermined, with one sagittate leaf. The figure shows one dot on the leaf which my specimens (from Mount Tien tai in Chekiang Province) have not.

The figure to *P.*, XVII*b*, 20, indicates *P. tuberifera*. *C.*, 975. *Jap.*, 1638.

The name is also given to *Pinellia pedatisecta*, Schott., in Szechuan.

A., XV, 181, *Arisæma Loureiri*, Bl., and *Iris. cochinchinense*, Bl. *Sm.*, 149 [comp. 22, 26] also *Iris. ternatum* and *Arum macrorum*.

Jap., 209, *Arisæma japonicum*, Bl., 天南星.
" 210, " *ringens*, Schott., 由跋.
" 211, " *serratum*, Thbg., 斑杖.
" 212, " *Thunbergii*, Bl., 虎掌.

423.—蘦 *Meng*. LEGGE says, regarding this plant, mentioned in the *Shi king*, that it is a lily called the "mother-of-pearl" from the appearance of its shining bulbous roots, or, as others say, from that of its flower. It is the *Fritillaria Thunbergii*. Many medical qualities are ascribed to the root, among them that of dissipating melancholy.

Shi king, 88 :—I will ascend that mound with the steep side, and gather the mother-of-pearl lilies.

See the *Rh ya* [75], where the name is written 蒙 *meng* and identified with 貝母 *pei mu*, which latter term LEGGE translates by mother-of-pearl, but WILLIAMS [*Dict.*, 609] more correctly by cowrie-mother [*see further on*].

LU KI :—The *meng* or *pei mu* is a medicinal plant. Its leaves resemble those of the *kua lou* (*Trichosanthes*), but are smaller. The seeds are produced beneath the root and resemble those of the 芋 *yü* (*Colocasia*). They are white, quadrangular shaped, of various sizes, and connected together. The Chinese author, in this confused account, seems to confound the seeds with the small bulbils forming the corm of the plant.

Father DAVID saw the Chinese plant, whose bulbs furnish the drug *pei mu*, at Moupin, on the borders of Tibet. According to FRANCHET [*Pl. Davidianæ*, II, 130] this is *Fritillaria Roylii*, Hook, with yellow flowers. Another, new species, *F. Davidii*, likewise found at Moupin, is described as having corms formed of a number of small bulbils. It is, I suppose, the same with respect to the corms of the other species. FORTUNE in his *Wanderings* [261] notices a *Fritillaria* with greyish white flowers, cultivated for its bulbs, near Ningpo. This is probably the *pei mu* exported from Ningpo, mentioned in the *Reports on Trade, Chinese Maritime Customs*, for 1869, p. 66, where some interesting details regarding this drug are given.

In the *So moku* [V, 81] 貝母 is *Fritillaria Thunbergii*, Miq. But neither the account of the *pei mu* as given in *P.*, XIII, 39, nor the drawing in *Ch.*, VII, 42 (a plant with hastate leaves) agrees with *Fritillaria*. LU KI, as we have seen, makes the *pei mu* to have palmate leaves. The leaves of *Fritillaria* are generally linear lanceolate, in some species broader, elliptical. The Chinese drug *pei mu* (bulbils) resembles indeed, as the Chinese name implies, the small

shells used for coin in many parts of Southern Asia and Africa under the name of *cowry* (*Cypræa moneta*).

HENRY [*l.c.*, 366] states that the plant which occurs on the mountains of the Patung district, and the bulbs of which are sold as a drug, is a new species of *Pleione* (an orchid). He thinks that the *pei mu* of Sz'ch'uan is not from the same plant.

V. supra, 75. *Jap.*, 974, *Fritill. Thunbergii*, Miq., 貝母.
C., 993, *Frit. Roylei*, Hk.
B., *Uvularia cirrhosa*, Thbg. *Sm.*, 112, 225, *Hermodactyle*; *Uvularia grandiflora*. *A.*, XV, 136, *Thalictrum sinense*, Lour.
Szechuan, *Omei*, *Rohdea japonica*, Roth.?

424.—諼草 *Hüan ts'ao*, the plant of forgetfulness, *Shi king*, 106 :—

> How shall I get the plant of forgetfulness?
> I would plant it on the north of my house;
> Longingly I think of my husband,
> And my heart is made to ache.

MAO explains the name by 令人忘 (causes one to forget). CHENG HÜAN says that the plant is properly called 萱 *hüan*. The *Shuo wen* writes the name 藼 or 蘐 and explains that this plant causes one to forget his sorrows.

At Peking the name 萱草 *hüan ts'ao* is applied to *Hemerocallis fulva*, L., and *H. graminea*, Andr., species with orange and yellow flowers, both having long narrow leaves. They are common in the Peking mountains, and are more generally known by the name 黃花 *huang hua* or yellow flower. *H. fulva* is also much cultivated at Peking as well as in other parts of China. Its dried flowers are largely consumed as food by the Chinese and go also under the name 金鍼菜 *kin chen ts'ai* (gold needle vegetable). These are the *Lily flowers* of the *Chinese Maritime Customs Reports*. [See also LOUREIRO, *Flora cochin.*, 254.]

The *hüan ts'ao* is described in *P.*, XVI, 19. It is also called 鹿葱 *lu tsung* (stag's onion). Good drawings of it in the *Kin huang*, XLVI, 10, and in *Ch.*, XIV, 42.

Amœn. exot., 872, 萱 *ken* vulgo *quanso* et *wasrigusa*. Iris hortensis latifolia, flore pleno magno coloris ignei. KÆMPFER is mistaken, for in the *So moku* [VI, 13, 14] are represented, under the above Chinese and Japanese names, *Hemerocallis fulva, flava* and other species.

LEGGE thinks that the Japanese plates represent under *hüan*, *Hemerocallis japonica*. But this plant with white flowers and broad leaves (now generally considered as *Funkia*) is in China as well as in Japan, 玉簪 *yü tsan*.

E., 71, family 鹿葱, with good figure and 12 names.

S., XII, 33. *C.*, 476. *Sm.*, 110.

A., XV, 177, *Nerine* (*Hemerocallis*) *cochinchinensis*, Roem.

Jap., 1076, *Hemerocallis Dumortieri*, Morr., 金萱.

" 1077, " *flava*, L., 萱草, one of the synonyms of *E.*

Jap., 1078, *Hemerocallis fulva*, L., 千葉萱草=金針花. *A.*, XV, 178. *Sm.*, 110, *H. graminea*.

" 1078, *Hemerocallis fulva*, var. *angustifolia*, Bkr., 黃萱.

" 1079, " *Middendorfii*, Max., 金萱 (=1076).

" 977, *Funkia ovata*, Spr. 紫蕚. Szechuan, *H. disticha*, 金珍花 and 土黃花.

" 978, *Funkia Sieboldiana*, Hkr., 玉簪.

425.—苓 *Ling*. This name occurs twice in the *Shi king*. MAO explains it by *ta k'u* (the great bitter). CHENG HÜAN says that it is the 甘草 *kan ts'ao* of the *Pen ts'ao*. But the latter is Liquorice (*Glycyrrhiza*). [V. *supra*, *Rh yu*, 199, where the name is written 蓄 *ling*, also *ta k'u*.]

Shi king, 62:—The Liquorice grows in the marshes. 187:—Would you gather the liquorice on the top of Shou yang?

126.—游龍 *Yu lung* is the name of a plant mentioned in the *Shi king*, LEGGE calls it Water Polygonum, Polygonum. It is called *yu lung*, or wandering dragon, from the way in which its branches and leaves spread themselves out.

Shi king, 138:—In the marshes is the spreading Water *Polygonum*. MAO explains *yu lung* by 紅草 *hung ts'ao* (red plant).

[See *Rh ya*, 102. 紅 *hung* or 龍古 *lung ku*.

LU KI:—The *yu lung* is also called 馬蓼 *ma liao* [Horse's *Polygonum*, comp. above, 366]. It is a tall plant, more than a chang high, grows in marshes. Large leaves, red or white.

In *P.* [XVI, 79] the name is written 葒 *hung*, also called 水葒 *shui* or water *hung*. This is the *Polygonum orientale*, a large, conspicuous species, a common plant all over China. It is also much cultivated in gardens as an ornamental plant. Figured in *Ch.*, XI, 90, and *Kiu huang*, XLVI, 12.

Amœn. exot., 891, 紅 *koo*, vulgo *ke tade*, it. *inu tade*, i.e. *Persicaria lanuginosa*; caule quadripedali, simplici, piloso, geniculis fimbriatis . . . . folio cordato amplo . . . . flore incarnato.

THUNBERG, *Flora jap.* [165] refers this to *P. barbatum*, but in SIEBOLD, *Syn. plant. œcon. jap.*, 105, and *So moku*, VII, 76, the Chinese name given by KEMPFER is applied to *P. orientale*.

427.—茨 *Ts'z'*. This character occurs twice in the *Shi king*. LEGGE translates it correctly by *Tribulus terrestris*.

74:—The *Tribulus* grows on the wall and cannot be brushed away, cannot be removed. 363:—Thick grew the *Tribulus* on the ground, but they cleared away its thorny bushes.

In the *Rh ya* [90] the character *ts'z'* is explained by 蒺藜 *tsi li*, which even now is the vulgar name for *Tribulus terrestris*, L., a common plant throughout China. It is a

creeper with abruptly pinnate leaves, yellow flowers and a pentagonal spinous fruit.

The *Shuo wen* explains the character *ts'z'* by to thatch a house with the *mao* and *wei* rushes [*v. infra*, 459, 455].

Li sao, 23, where the character is written 蓎 [*see* quotation *supra*, 421].

P. XVI, 86, *tsi li*. The ancient authors quoted say that the fruit of the *tsi li* resembles that of the *ling* or water caltrop, but is smaller, has three horns and is prickly. It has yellow flowers. There is another kind growing on sandy ground. It has small leaves, yellowish purple flowers resembling pea flowers, and produces pods (thus probably a leguminous plant). Drawings of the *tsi li* or *Tribulus* are found in the *Kiu huang*, LII, 3, and *Ch.*, XI, 27.

Phon zo, XX, 16, 疾藜, *Tribulus terrestris*.

V. supra, 90. *Jap.*, 2221.

428.—蓍 *Shi*. This is the divining plant, the stalks of which were used in ancient times for the purpose of divination. It is once mentioned in the *Shi king* [225] :—Cold come the waters down from that spring and overflow the bushy divining plant.

Chu Hi explains *shi* by 筮草 (divining plant).

Chou li, II, 80 :—L'officier de la plante divinatoire (筮人 *shi jen*) s'occupe des trois méthodes des changements, et distingue les noms des neuf devins par la plante *chi* (*shi*). Les neuf devins servent pour distinguer le bonheur et le malheur. Dans toutes les grandes affaires d'état, d'abord on fait la divination par la plante *chi* ; ensuite on augure par la tortue. Au commencement du printemps le même officier fait l'inspection des plantes divinatoires.

Li ki, I, 94 :—On the subject of Divination. Divination by the tortoise-shell (龜 *kui*) is called 卜 *pu* ; divination by the stalks (筴 *ts'e*) is called 筮 *shi*. The two were the methods by which the ancient wise kings made the people

believe in seasons and days, revere spiritual beings, stand in awe of their laws and orders; the method also by which they made them determine their perplexities and settle their misgivings. The commentator 呂氏 Lü says that 筮 stands here for 蓍 *shi*.

Ibidem I, 298 [*Yüe ling*]:—First month of winter. Orders are given to the Grand Recorder to smear with blood the tortoise-shell and the divining stalks (筮 explained as above) and by interpreting the indications of the former and examining the figures formed by the latter, to determine the good and evil of their intimations. I, 385:—The ancient kings made use of the stalks [as above] and the tortoise-shell.

Shu king, 335:—Divination. In all the indications are seven, five given by the tortoise, two by the milfoil (*shi*).

Biot says [in an article on the Manners of the Ancient Chinese, translated by Legge in his *Shi king*, Proleg. 142–171]:—We do not know well how this divination was performed formerly. At the present day they place on the right and on the left a packet of leaves of this plant (*shi*); then they recite some mysterious words, and by taking a handful of leaves from each packet, they prognosticate according to their number. Legge observes that stalks, and not leaves, have always been mentioned to him by Chinese describing the method of divination.

In the *Shi ki*, or *Historical Record*, in the article on divination, it is said that a hundred stalks of the *shi* plant come out from the same root. Where this plant grows neither tigers, wolves nor poisonous plants are found.

The *Shuo wen* says:—The *shi* is a kind of *hao* (*Artemisia*). The plant will yield, when a thousand years old, three hundred stalks. The lengths of the stalks used in the manipulation were: for the Son of Heaven 9 feet, for the feudal princes 7, for the high officers 5, and for the graduates 3 feet,

Chu Hi says :—The way of divination by the tortoise was by the application of fire, to scorch the shell till the indications appeared on it ; and that by the stalks of the *shi* plant was to manipulate in the prescribed way 49 of them, 18 different times, till the diagram was formed. Legge calls this divination sometimes "divination by reeds." [*Shi king*, 98, 266.]

Legge [*Shu king*, 335] calls the *shi* plant milfoil. Williams [*Dict.*, 758] says it is a sort of syngenesious plant resembling the *Anthemis*, the *Ptarmica sibirica*, which grows around Confucius' grave in Küh feu, and, as was done in ancient times, is still sold there in parcels of 64 stalks, for divination. The stems were once used for hair-pins.

From the account given of the *shi* plant in *P.*, XV, 7, we may conclude that it belongs to the order of *Compositæ*. The drawing of it in *Ch.*, XI, 5, is very rude, and no identification can be ventured.

In the *So moku*, XVII, 44, 蓍 is the *Achillea sibirica*, Ledeb. This is a common plant in the mountains of Northern China. But whether it really was the divining plant of the ancient Chinese, I am not prepared to say. At Peking the name *shi* is unknown.

E., 100, family 蓍. Figure the same as *P.*, XV, 7, which can neither be *Achillea* nor any other *composita*, but may be meant for a *Hypericum?*

S., I, 32, has two figures which may both represent *Hyperica*, one large flowered, the other small flowered.

Jap., 39, *Achillea sibirica*, Ledeb.

429.—The genus *Artemisia* is represented in China by a considerable number of species. Forbes and Hemsley, in the *Index Flora sinensis*, enumerate 21. In the *Shi king* we meet with eight names of plants referred by Legge and others to Southernwood or *Artemisia*.

The 艾 *ai*, which name occurs in the *Shi king* [120] has been correctly identified by LEGGE with the Mugwort, *Artemisia vulgaris*, L. It is one of the plants which the Chinese employ for their moxa.

MENCIUS, 177 :—The case of one of the present princes wishing to become emperor, is like the having to seek mugwort (*ai*) three years old to cure a seven years' sickness. If it have not been kept in store, the patient may all his life not get it. Commentary :—The down of the mugwort burnt on the skin, is used for purposes of cautery. The older the plant, the better.

The *ai* is mentioned in the *Rh ya* [77].

Li sao, 49 :—Sachets remplis d'armoise (fétide), *ai*. 55 :—Mauvaises herbes. The Chinese text has *siao* [*v. infra*, 435] and *ai*.

P., XV, 8, *ai*. Other names :—醫草 *I ts'ao* (medicinal herb), 灸草 *chi ts'ao*, burning herb, *moxa*. Figured *Ch.*, XI, 81, *Artemisia vulgaris*. This is a common plant all over China, wild and cultivated.

Amœn. exot., 897, 艾 *gai*, vulgo *jamogi*. *Artemisia vulgaris major* ; quæ junior vocatur *futz*, ex qua fit *moxa*, celebris stupa pro cauterio actuali. *So moku*, XVI, 16, same Chinese name. *Artemisia vulgaris*.

Jap, 218, *Artemisia annua*, L., 黃花蒿.
" 319, " *apiacea*, Hce., 青蒿.
" 220, " *capillaris*, Thbg., 茵蔯蒿.
" 222, " *japonica*, Thbg., 牡蒿.
" 224, " *Keiskeana*, Miq., 菴蔺.
" 227, " *Stelleriana*, Bess., var. *vesiculosa*, Fr. & S., 白蒿.
" 228, " *vulgaris*, L., var. *vulgatissima*, Bess., 蓬蒿.
" 230, " *vulgaris*, L., var. *parviflora*, Max., 野艾蒿.
" 231, " *vulgaris*, L., var. *indica*, Max., 艾.

430.—蔞 *Lou*. LEGGE calls it southernwood, a species of *Artemisia*.

Shi king, 17 :—Many are the bundles of firewood. I would cut down the southernwood (*lou*) to form more.

Comp. the *Rh ya* [192]. *Shuo wen* :—The *lou* is a plant which is cooked with fish.

LU KI :—The *lou* is also called 蔞蒿 *lou hao* (*lou Artemisia*). Its leaves resemble those of the *ai* (*Artemisia vulgaris*), are several inches long, of a white colour (downy). The plant grows to the height of more than 10 feet, by the edges of water or in marshy ground. In the first month the young white shoots, which are soft and fragrant, may be eaten raw. The leaves are eaten cooked.

Ch., XII, 6, figures under the name *lou hao* an *Artemisia* with large, deeply cleft leaves, resembling the plant in the *So moku*, XVI, 17, under the same Chinese name, which is a variety of *A. vulgaris*.

P., XV, 20, considers the *lou* to be the same as the 蒿白 *pai hao* or white *Artemisia*.

The text of the *Shi king* seems to imply that the *lou* was used for fuel. I may observe that among the Northern Chinese species of *Artemisia*, *A. campestris* answers best this purpose, for it is a shrub attaining considerable dimensions. It is very common in the Peking mountains and in Mongolia. The Mongols call it *sharaldji* and, according to PRZEWALSKY, employ it largely for fuel.

431.—蒿 *Hao*. LEGGE says it is the male southernwood, but this term the Chinese authors apply to the next.

Shi king, 246 :—With pleased sounds the deer call to one another, eating the southernwood (*hao*) of the fields. 350 :—Large and long grow the *ngo* [*v.* 434]. It is not the *ngo* but the *hao*.

Li ki, I, 257 :—First month of spring. If the governmental proceedings proper to autumn were carried out in spring, there would be pestilence, boisterous winds, rain in torrents ; orach (藜) fescue (莠) darnel (蓬) and southernwood (蒿) would grow up together.

Rh ya, 13, *hao* or *shen*. Kor Po explains the names by 青蒿 *ts'ing hao*.

Lu ki :—*Hao* or *ts'ing hao*. It is fragrant and fit for being used as *moxa*. In 荆州 King chou and 豫州 Yü chou (Hukuang and Honan) the people call it 蔯 *shen* (*kien*). This latter character is explained in the *Shuo wen* by 香蒿 *hiang hao* (fragrant *Artemisia*).

P., XV, 16, 青蒿 *ts'ing hao* also 香蒿 *hiang hao*, and other names. From the descriptions given there it would seem that this is the *Artemisia annua*, L., a very common species throughout China, and very fragrant. Popular name at Peking *hiang hao*.

But in *Ch.*, XI, 92. the figure under 黄花蒿 *huang hua hao* (yellow flower *Artemisia*) seems to refer to *A. annua*, which identification would agree with the *So moku* [XVI, 27]. In the same Japanese work [25] 青蒿 is *A. apiacea*, Hee., which agrees with the figure under the same Chinese name *Ch.*, XI, 93.

Amœn. exot., 897. 蒿 *kao*, vulgo *jamogi* Artemisia folio tenuissimo. Thunberg [*Flora jap.*, 310] thinks that Kæmpfer refers to *A. japonica*.

432.—蔚 *Wei*. Legge says a species of southernwood.

Shi king, 351 :—Long and large grows the *ngo* [*c.* 434]. But it is not the *ngo* but the *wei*.

Rh ya, 14, *wei* or *mou shen* (*kien*).

Lu ki :—The *wei* is also called 牡蒿 *mou hao* (male southernwood). It begins to grow in the third month ; in the seventh month it is in flower. The flowers resemble

those of the 胡麻 *hu ma* (*Sesamum orientale*), are of a reddish purple colour. In the eighth month the plant produces long pods pointed at the end like horns. It is also called 馬新蒿 *ma sin hao.*

Under the name 馬先蒿 *ma sien hao* with the above synonyms, *wei, mou hao, Ch.* [XI, 41] figures the *Incarvillea sinensis*, Juss., a beautiful plant of Northern China, order *Bignoniaceæ*, with large, scarlet flowers. Lu ki's description agrees with this identification. The same plant is represented in the *Kiu huang* [XLVI, 33] under the names of 猪牙菜 *chu ya ts'ai* (pig's tooth vegetable) or *küe hao* (horned *Artemisia*). These names refer to the long, curved capsules.

But other authors take the *wei* or *mou hao* (male southernwood) to be an *Artemisia*, and *Ch.* [XIV, 9] figures under these names an *Artemisia*. The drawing agrees with that found in the *So moku* [XVI, 20] under 牡蒿, which represents *A. japonica*, Thunberg. [See also *P.* XV, 23.]

Jap., 1581, *Pedicularis resupinata*, L., 馬先蒿.

433.—蘩 *Fan*. This is likewise an *Artemisia*. Mao explains the character by 白蒿 *pai hao* (white *Artemisia*).

Shi king, 22 :—She gathers the white southernwood (*fan*). 228 ["Life in Pin"] :—The young women take their deep baskets and go along the small paths, looking for the tender leaves of the mulberry tree; as the spring days lengthen out, they gather in crowds the white southernwood (*fan*). 264 :—Our wives go in crowds to gather the white southernwood (*fan*).

Chou Hi says that the leaves of the *fan* were used both in sacrifices and to feed the young silkworms which were later in being hatched. More correctly Sü Kuang-ki says that the eggs are washed with a decoction from the leaves to assist their hatching [Legge].

See the *Rh ya* [12], *fan* or *p'o hao*. *Hia Calendar*, 30:—Second month. The *fan* plant is gathered. I do not know on what authority DOUGLAS translates *fan* by *Ailantus glandulosa*.

LU KI:—The *fan* or *p'o hao* is a kind of *ai* [*Artemisia vulgaris*, *see* 429] of a white colour (*i.e.*, downy leaves). It is also called **白蒿** *pai hao* (white *Artemisia*). It begins to grow in spring and (flowers) till autumn. It is fragrant, can be eaten raw and cooked. Another name for the plant is **游胡** *yu hu*. The people in **北海** Pei hai (Eastern Shantung) call it **旁勃** *p'ang pu*.

P., XV, 20, *pai hao*. The name is explained by the downy surface of the leaves. The figure of the plant in *Ch.* [XI, 7] is of no value. In the Peking mountains the people apply the name *pai hao* to *Artemisia Sieversiana*, Ehr. In the *So moku* [XVI, 26] **白蒿** is *Artem. Schmidtiana*. MAXIMOWICZ says:—Tota argenteo-sericea.

434.—**莪** *Ó* (*ngo*). This name LEGGE translates by Aster southernwood, because he found in the Japanese plates that the common name of the plant in Japan is **朝鮮菊** *Chao hien kü* or Aster of Corea. He says the white flower with which it is there depicted is very like a Chrysanthemum. I may observe that the plant mentioned in the *Amœn. exot.* [911] under *korei giku*, *Matricaria coreensis*, is, according to THUNBERG [*Flora jap.*, 320], *Chrysanthemum coronarium*, L. But the *ô*, in China at least, is not Chrysanthemum. This character is not met with in the Japanese botanical works known to me.

Shi king, 279:—Luxuriantly grows the aster southernwood (*ô*) in the midst of that large mound. 351:—Long and large grows the *ngo*.

The *Rh ya* [44] has *ô* or *lo*. MAO explains *ô* by **蘿蒿** *lo hao* as also does the *Shuo wen*. The *Kuang ya* has *lo hao*

or 蘭蒿 *lin hao*. Under the latter name the plant is noticed in *P*., XV, 22. The other names are given as synonyms. The figure in *Ch*., XIV, 24. under *ó hao* is rude. It cannot be decided what kind of plant is meant.

Lu ki says :—The *ó hao* or *lo hao* grows in low, swampy places. Its leaves resemble those of the 邪蒿 *sie hao*, but are smaller. The stem of the plant can be eaten raw or cooked.

The 邪蒿 in the *So mokn* [V, 12] is *Seseli libanotis*. Koch, an umbelliferous plant, but in the *Phon zo* [XLVII, 5] it is *Cardamine sylvatica*, Link., according to Franchet ; but the drawing rather seems to refer to *Sisymbrium sophioides*.

蘭蒿 in the *Phon zo* [XIV, 6] is *Pedicularis sceptrum carolinum*, L.

V. supra, 44. *E*., 62, family 蒿, p. 11, *lin hao*, with synonym 抱娘蒿. *Jap*., 2089, *Sisymbrium Sophia*, L., 抪娘蒿. 2075. *Seseli Libanotis*, Koch, 邪蒿.

435.—蕭 *Siao*. Legge calls this the ox tail's southernwood. *Shi king*, 120, 365 :—Gathering the ox tail southernwood. 224 :—Cold come the waters down from that spring and overflow the bushy southernwood (*siao*). 274 :—How high and long is the southernwood. 471 :—We take southernwood (*siao*) and offer it with the fat.

Mao explains the *siao* of the *Shi king* by 蒿 *hao*, *Artemisia*. *Li ki* [I, 443] *Artemisia* (*siao*) along with millet and rice burned with the fat of the victim in sacrifices. II, 221 :—On sacrifices. The fat of the inwards was burned, and this was mixed with the blaze of dried southernwood (*siao*). This served as a tribute to the spirit.

Chou li, I, 84 :—Le préposé au territoire hors banlieue fournit quand il y a des sacrifices les plantes odoriférantes (*siao*) et les herbes pour envelopper [*mao*, v. *infra*, 459]. The commentary explains *siao* by *hiang hao* (fragrant *Artemisia*).

Rh ya, 196 and 119. The *siao* is mentioned in the *Li sao*. [See quotation, *supra*, 429.]

Lu ki :—The *siao* is now called 狄蒿 *ti hao*, also 牛尾蒿 *niu wei hao* (ox tail's southernwood). It resembles the *pai hao* [*v.* 433], has white (downy) leaves. It can be used for torches. Owing to its fragrance it is employed in sacrifices and burned with the fat of the victims.

P. does not notice this plant. *Ch.* [XII. 23] figures under *niu wei hao* or *siao* two plants which may be *Artemisia*.

The character 狄 *ti* properly denotes a reed or rush [*v. infra*, 455]. I may observe that the *Rh ya* [196] writes 萩 *ts'iu*, which latter name, according to Hoffm. & Schultes [50] in Japan is applied to *Antennaria* (*Gnaphalium*) *margaritacea*, R. Br.

Jap., 1037, *Gnaphalium yedoense*, Fr. & S., 蒌.

436.—There is finally the character 蓬 *p'eng* in the *Shi*, which Legge refers to *Artemisia*, on the authority of the *Shuo wen*, where *p'eng* is explained by *hao*. [See also the *Rh ya*, 15.]

Shi king, 36 :—Strong and abundant grows the *Artemisia* (*p'eng*). 105 :—Since my husband went to the east, my head has been like the flying (*pappus*) of the *Artemisia* (飛蓬 *fei p'eng*).

In the *Li ki* [I, 257] Legge translates *p'eng* by darnel : [see the quotation under 431].

P. [XXVI, 54] identifies the 蓬蒿 *p'eng hao* with the 蒿蒿 *tung hao* which is *Chrysanthemum coronarium*, L. Drawings, *Ch.*, IV, 35, *Kin huang*, LVIII, 31. *So moku*, XVII, 13.

Chu Hi in explaining the term *fei p'eng* in the *Shi king* says that the *p'eng* has flowers like the catkins of the willow, which fly about in the wind like hair. But other authors [see the *Pi ya*, and *W.D.*, 661] say that by *fei p'eng*, or flying *p'eng*, the whole plant is meant, which is rooted up by

the wind and driven across the wastes. This phenomenon of plants being driven across the desert is frequently seen in Mongolia.

In the *Phon zo*, XLI, 20, 飛蓬 is *Erigeron*. In the *So moku*, XVII, 12, 蓬 is *Conyza ambigua*, DC., a composite plant. *Ibidem*, IV, 43, 鹹蓬 is *Salsola asparagoides*, Miq. The plant represented in *Ch.*, XII, 40, under the same Chinese name *kien p'eng* seems to be a *Salsolacea*. *Kien* means Soda. Another salsolaceous plant is figured in *Ch.*, XII, 42, under the name 沙蓬 *sha p'eng* (*sha* = sand) a plant of the desert. It is perhaps *Agriophyllum*.

Two passages in the *Li ki* refer to arrows made of the *p'eng*. LEGGE translates wild *Rubus* or Raspberry.

I, 472 :—When a son and heir to the ruler of a State was born . . . . the master of the archers took a bow of mulberry wood and six arrows of the wild *Rubus (p'eng)*, and shot towards heaven, earth and the four cardinal points. After this the nurse received the child. Nearly the same is related, II, 452.

LEGGE in translating *p'eng* by *Rubus*, has evidently in view the 蓬藁 *p'eng lei* [*P.*, XVIII*a*, 7]. It is figured in *Ch.* [XXII, 7] and is indeed a *Rubus*. In Japan the same Chinese name is applied to *R. crataegifolius.*, Bge, and *R. pectinellus*, Maxim. [See *Phon zo*, XXV, 7, 8.] But whether the *p'eng* in the above passages of the *Li ki* means a raspberry bush is very doubtful.

V. supra, 15. *Jap.*, 886, *Erigeron Kamtschaticum*, DC., 蓬.

1977, *Salsola aspar.*, 鹹蓬.

About *Rubus* [*v. supra*, 133].

Jap., 1932, *Rubus Buergeri*, Miq., 寒苺.

" 1935, " *incisus*, Thbg., 懸鈎子.

" 1938, " *parvifolius*, L., 蘇田薦.

" 1943, " *rosifolius*, Sm., var. *coronarius*, Sims, 茶藨花.

" 1947, " *Thunbergii*, S. & Z., 蓬藁.

Jap., 1948, *Rubus Tokkura*, Sieb., **覆盆子**.

„ 967, *Fragaria indica*, Andr., **蛇苺**.

437.—**蓫** *Su* or, as the *Rh ya* [118] calls it, **牛唇** *niu shun*, oxlip.

Shi king, 165:—There along the bend of the Hwun (**汾** *Fen*, a river in Shansi) they gather the oxlips (*su*).

Mao calls it **水舄** *shui si*, as also does the *Shuo wen*.

Lu ki:—The *su* is now called **澤蕮** *tse si*. Its leaves resemble those of the **車前** *ch'e ts'ien* (*Plantago*). They are large, and also in taste they resemble that plant. In **徐州** Suchou, in the district of **廣陵** Kuang ling (Northern Kiangsu) the people use them for food.

The plant intended by Lu ki is *Alisma plantago*, L., mentioned under its present name in the *Rh ya* [*v. supra*, 95]. It is therefore improbable that the *su* or *niu shun* [*Rh ya*, 118] should denote the same plant.

Jap., 96, *Alisma Plantago*, L., **水澤瀉**.

438.—**卷耳** *Küan rh*. This is the name of a plant which Legge calls the mouse's ear, and which is the title of an ode in the *Shi king* [8]:—

I was gathering and gathering the mouse's ear.

Mao calls it **苓耳** *ling rh*, as does also the *Rh ya* [184].

Lu ki:—The *küan rh*, called also **枲耳** *si rh* and **胡枲** *hu si*. The leaves are of a light green colour and resemble those of the **胡葵** *hu sui* (*Coriandrum sativum*). It has a debile stem, white flowers. The plant is eaten cooked, it is mucilaginous. In the 4th month it is in fruit. The fruit resembles a lady's ear-pendent, wherefore the plant is also called **耳璫草** *rh tang ts'ao* (ear-pendents herb). The people of **幽州** Yu chou (Northern Chili) call it **雚耳** *tsio rh*.

Legge makes Chu Hi say that the leaves of the *küan rh* are like a mouse's ear and that it grows in bunchy patches. But Chu does not refer to the leaves, he only says it

resembles a mouse's ear, and I think he had rather in view the fruit of the plant. LEGGE quotes the *Rh ya i*, where it is stated that the fruit of the *käan rh* is like a mouse's ear and prickly, sticking to people's clothes.

P., XV, 64, *si rh*. LI SHI-CHEN says the fruit resembles the mulberry and is prickly. The *Pen ts'ao king* calls the plant 蒼耳 *ts'ang rh*. This is now the vulgar name for the *Xanthium strumarium*, L., a common weed throughout China. It has a small, oblong, prickly fruit. It is represented in the *Kiu huang* [LII, 22] and in *Ch.* [XI, 50].

Amœn. exot., 892 :—蒼耳 *soomi* vulgo *namome*. *Xanthium Lappa minor*. *So moku*, XX, 25 :—Same Chinese name. *Xanthium strumarium*. But under 卷耳 the *So moku* [VIII, 71] depicts *Cerastium glutinosum*, Fries.

439.—芣苢 *Fou i*. Title of an ode in the *Shi king* and name of a plant which LEGGE correctly identifies with the plantain (Plantago).

Shi king, 14 :—Song of the plantain-gatherers. We gather the plantain, now we pluck the ears, now we rub out the seeds, now we place the seeds in our skirts. LEGGE adds :—From the preface (of the *Shi*) it appears that these seeds were thought to be favourable to child-bearing. They are still thought in China to be helpful in difficult labours.

The *Rh ya* [200] gives as a synonym for *fou i* 車前 *ch'e ts'ien*, which is still the common Chinese name for Plantago.

LU KI :—*Fou i*, other names *ma si*, *ch'e ts'ien* [as in the *Rh ya*], 當道 *tang tao*. It grows in the footmarks of cattle, whence the names *ch'e ts'ien* (ahead of the cart) and *tang tao* (this answers to the German name for Plantago—Wegerich). The seeds are used as a medicine, especially in difficult parturition. The people of 幽州 Yu chou (Northern Chili) call it 牛舌草 *niu she ts'ao* (ox tongue). But this name

rather refers to *Rumex*). The plant is eaten boiled; it is very mucilaginous.

P., XVI, 54 :—*Ch'e ts'ien.* Under the same name Plantago is figured in the *Kiu huang* [XLVI, 11] and *Ch.* [XI, 28].

Amœn. exot., 912, 車前 *sjaden*, vulgo *obacko*, *Plantago major vulgaris latifolia*. *So moku*, II, 27, same Chinese name, *Plantago major* var. *asiatica*. The plantain of Northern China belongs to the same variety. There is at Peking also the var. *japonica*, which is characterised by its enormous size; the stalks with the spike several feet long; large leaves.

Jap., 1647, *Plantago asiatica*, L., 車前.

440.—蓫 *Chu*, LEGGE says it is the dock (*Rumex*) and, translating its common Chinese name, calls it sheep's foot.

Shi king, 302 :—I travelled through the country gathering the sheep's foot.

MAO explains *chu* by 惡菜 (bad vegetable). CHENG HÜAN calls it 牛蘈 *niu t'ui*. [See the *Rh ya*, 117.]

LU KI :—*Chu* or *niu t'ui*. The people of 揚州 Yang chou (Anhui, Chekiang) call it 羊蹄 *yang ti* (sheep's foot). It is (the root is meant, it seems) like the 蘆服 *lu fu* [the Radish, *see* the *Rh ya*, 39]. The stem is of a red colour. The plant may be eaten cooked. It is mucilaginous and wholesome. In Yu chou (Northern Chili) they call it *chu*.

P., XIX, 4 :—*Yang ti*, also called 牛舌 *niu she* (ox-tongue), which latter is the common name at Peking for *Rumex japonicus*, Meissn., and *R. crispus*, L. The first cultivated as a vegetable.

The rude drawings of the *yang ti* in the *Kiu huang* [LII, 21] and *Ch.* [XVIII, 8] may be intended for *Rumex*. HENRY, *l. c.*, 308 :—In Hupei *niu she t'ou* is *Rumex acetosa*, L.

Amœn. exot., 911 :—羊蹄 *jo tei*, communiter *si*. Thlaspi majus, foliis Lapathi, caulibus in spicas excurrentibus,

capsulis Bursæ pastoris, intermixtis foliolis, confertas. I do not know what KÆMPFER means.

SIEBOLD [*Syn. plant. œcon. jap.*, 108] refers the above Chinese name to *Rumex crispus*, L., japonice *gisi gisi*. Remedium agricolis in exanthematibus.

So moku, VII, 27, same Chinese name, *R. japonicus*, Meissn.

Jap., 1953, *Rumex aquaticus*, L., var. *japonicus*, Meisn., 土大黃.

„ 1954, „ *japonicus*, Meisn., 羊蹄.

441.—Another plant, which may be a *Rumex*, is mentioned in the *Shi king* under the name of 莫 *mo*. LEGGE thinks that it is the sorrel, *Rumex acetosa*, but notices that in the Japanese plates it appears as *Equisetum* (horse tail) which is evidently a mistake.

Shi king, 164 :—There in the oozy grounds of the Hwun (汾 Fen, a river in Shansi) they gather the sorrel (*mo*). MAO explains that *mo* is a vegetable.

LU KI :—The stem of the *mo* is as thick as a goose-quill, of a red colour, and giving out at every joint leaves like the willow, thick and long, covered with hairy prickles. It is of a sour taste and when young can be boiled into soup. It is also eaten raw Its common name in China is 酸迷 *suan mi*. In 冀州 Ki chou (Chili) it is called 乾絳 *kan kiang* (dry red), in 河汾 Ho Fen (Shansi) it is 莫 *mo*.

The above account would agree in a general way with Sorrel, but that plant is glabrous.

P. [XIX, 7] describes under the name 酸模 *suan mo* (sour *mo*) a plant with a sour taste, resembling the *yang ti* [*see the preceding*]. Some authors identify it with the plant [*Rh ya*, 105]. A rude drawing of the plant, *Ch.*, XVIII, 9.

SIEBOLD, *Syn. plant. œcon. jap.*, 109, 酸模 *suiwa*, *Rumex persicaroides* (*i.e.*, *R. japonicus*, Meissn.). Herba edulis. *So moku*, VII, 29, 30, same Chinese name, *R. acetosa*, L.

442.—**蕢** *Fu*. LEGGE, relying on the Japanese plates, identifies the *fu* of the *Shi king* with pokeweed, *Phytolacca decandra*, but that is a mistake. Pokeweed (*Ph. acinosa*) is **商陸** *shang lu*. [*See* the *Rh ya*, 112].

Shi king, 303 :—I travelled through the country gathering the pokeweed. MAO explains *fu* by **惡菜** (bad vegetable). The *fu* is mentioned in the *Rh ya* [51].

LU KI :—*Fu*. In Yu chou (Chili) it is called **燕蕢** *yen fu*. It has a white root. The people eat it baked in hot ashes, especially in years of scarcity, when it appeases hunger. In the time of the Han dynasty it was used in certain sacrifices. There are two kinds. One of them, with small leaves and red flowers, has an offensive smell.

P., XVIII*a*, 27, **旋花** *süan hua*, also **旋蕢** *süan fu*, a creeping plant with an edible root ; root and flowers used in medicine. *Kiu huang*, LI, 10, *Ch.*, XXII, 13, *süan hua*, also **燕蕢** *yen fu*, **蕢子根** *fu tsz' ken* (*fu* root). The plants figured are *Convolvulus* or *Calystegia*. HENRY, *l. c.*, 479 :—The character *süan* means to wind about, *Convolvulus*. At Peking it is *Calystegia sepium*, R. Br. (*Convolvulus sepium*, L.)

So moku, IV, 22, **旋花** *Calystegia japonica*, Miq.

Jap., 662, *Convolvulus japonicus*, Thbg., **旅花**.

443.—**蓨** *Yao*. LEGGE calls it the small grass or *Polygala japonica*.

Shi king, 229 [" Life in Pin"] :—In the fourth month the small grass (*yao*) is in seed.

MAO explains *yao* by a plant. *Rh ya*, 194, *yao yao* or *ki yüan*.

LEGGE says :—It is described as like hemp, with flowers of a yellowish red, and a sharp pointed leaf. Among other names given to it is that of *si ts'ao* (small grass). LEGGE translates evidently KUO PO's commentary on the *Rh ya*.

The passage in question reads **似麻黃赤華葉銑而黃其上謂之小草**, which I understand to mean: it resembles the *ma huang* (*Ephedra*), has red flowers, pointed leaves. Its top is called small plant. Kuo P'o says that the *yao yao* of the *Rh ya* is the **遠志** *yüan chi*. This latter name at Peking is applied to *Polgala temuifolia*, Willd., and *P. sibirica*, L. *P.*, XII*b*, 21, Drawings, *Kiu huang*, LIII, 5. *Ch.* VII, 13.

So moku, XIII, 8, **遠志**, *Polygala japonica*, Hout. This latter is also found in China.

The *Kuang ya* identifies the *yao* of the *Rh ya* with the **莠** *yu*, *Setaria* [*v. infra*, 463].

Jap., 1680, *Polygala sibirica*, L., **遠志**.

444.—**薽** *T'ui* or *chui*. Correctly identified by Legge with motherwort, *Leonurus*. [*See* the *Rh ya*, 25].

Shi king, 116:—In the valleys grows the motherwort, but scorched is it in the drier places.

Lu ki:—The *t'ui* plant has a square stem, white flowers which appear between the nodes (he means perhaps to say that the flowers are arranged in a whorl on the nodes. The flowers of *Leonurus* are red). Some ancient authors call it **菴蕳** *an lü* (this is an *Artemisia*), others **益母** *i mu* (mother's help). The *Pen ts'ao* terms it **茺蔚** *ch'ung wei*. Liu Hin [1st century B.C.] calls it **臭穢** *ch'ou wei* (stinking weed).

P., XV, 24, *ch'ung wei*. *Ch.* XI, 25. The drawing under *ch'ung wei* represents *Leonurus sibiricus*, L.

So moku, XI, 41, **益母草** or **茺蔚**, *Leonurus sibiricus*.

Jap., 1243, *Leonurus macranthus*, Max., **鼈菜**.

" 1244, " *sibiricus*, L., **荒蔚益母草**.

445.—**萊** *Lai*. This character is met with in the *Shi king* and in the *Chou li*. Legge translates it by orach (*Atriplex*), also by "useless plants."

Shi king, 272 :—In the hills of the north (in Chou) is the *lai*. 323, 365 :—The country is overgrown with *lai* (useless plants).

Lu ki :—*Lai* is the name of a weed. It is also called *li* [*see the next*]. The leaves may be eaten. The people of 兗州 Yen chou (South-western Shantung) eat them cooked.

In the *Chou li* we have the term 田萊 *t'ien lai* (a fallow field). Williams [*Dict.*, 499] thinks that *lai* is the sow-thistle (*Sonchus*). But it is more probable that it is a synonym for *li* (*Chenopodium*). [*See the next.*]

446.—藜 *Li*. Mentioned in the *Li ki*. Legge translates it by orach (*Atriplex*). [*See the quotation in* 431.]

P., XXVII, 28, *li*. It is the same as the 萊 *lai* of the *Shi king*, as Li Shi-chen believes. It is also called 紅心灰藋 *hung sin hui t'iao*. *Chenopodium* with a red heart. In ancient times they called this plant 藜藿 *li ho*. This term is used in the *Huai nan tsz'* and in Chuang tsz'. The young leaves may be eaten.

So moku, IV, 40, and *Phon zo*, L, 7, 藜 or 藜 *Chenopodium album*, L.

In the above name *hui t'iao*, the character *t'iao* is a general name for *Chenopodium* [*v. Rh ya*, 11] ; *hui* means ashes, and refers to the white meal with which the leaves of some species are covered. The young shoots and spikes often assume a reddish colour.

Fa Hien, when he returned, in A.D. 414, by sea from his long journey to the Buddhist countries, landed in the Province of Shantung. In the *Fo kuo ki* [*see* Beal's *Si yu ki*, Introduction, LXXXII] it is stated that on seeing the 藜蘿菜 *li ho* vegetable again, the traveller was confident that this was indeed the land of Han (China). I have no doubt that the first two characters, not

found in *K.D.*, are intended for 藜 藿 *li ho*, and that FA HIEN saw the *Chenopodium album*, a very common weed in Northern China.

Jap., 574, *Chenopodium album*, L., 藜.
„ 575, „ *ambrosioides*, L., 土荆芥.
Compare *Jap.*, 323, *Basella rubra*, L., 落葵, *supra*, 148.
„ 337, *Beta vulgaris*, L., 恭菜.
„ 2117, *Spinacia oleracea*, Mill, 菠薐菜.

447.—苓 *K'in*. LEGGE, on the authority of WILLIAMS [*Dict.*, 403], says that the *k'in* was a *Salsola*, but that from the Japanese plates it appears to be a Panic grass.

Shi king, 246 :—With pleased sounds the deer call to one another, eating the salsola of the fields.

LU KI :—The stem of the *k'in* plant is as thick as a hair-pin ; the leaves are like bamboo-leaves. It creeps on the ground in marshes and low grounds impregnated with salt. Cattle are very fond of it.

It is unknown what plant the *k'in* was. The name 黃芩 *huang k'in* in China, as well as in Japan, is applied to *Scutellaria*.

TATARINOV [*Catal. med. sin.*, 10] :—The drug *huang k'in* is *Radix Scutellariæ viscidulæ*, Bge. (probably only a variety of *Sc. macrantha*). *P.*, XIII, 12. *Ch.*, VII, 36.

So moku, XI, 48, 黃芩, *Sc. macrantha*, Fisch.

E., 153, family 黃芩. The bad figure is a copy of *S.*, II, 31.
Jap., 2037, *Scutellaria macrantha*, Fisch., 黃芩.
„ 2036, „ *indica*, L., var. *jap.*, Fr. & S., 丹參.
C., 513. *Sm.*, 194, *Scutellaria viscidula*, Bge.
H., 141, *Berberis nepalensis*, Spr., sometimes termed *huang lien*.
Jap., 334, *Berberis vulgaris*, L , 大黃連.

448.—苕 *T'iao*. This character in the *Shi king* is applied, as the Chinese commentators agree, to two different plants. One of them, according to LEGGE, who relies on the Japanese plates, is a pea or *Lathyrus maritimus*.

Shi king, 211:—On the embankments are magpie nests. On the height grows the beautiful pea (*t'iao*).

Mao explains it only by name of a plant. [Compare the *Rh ya*, 87.]

Lu ki:—The *t'iao* is also called 苕饒 *t'iao jao*. The people of 幽州 Yu chou (Northern Chili) call it 翹饒 *k'iao jao*. The stem of this plant is like that of the 勞豆 *lao tou* (a kind of cultivated bean), but more slender. The leaves resemble those of the *tsi li* (*Tribulus terrestris*, see 427). Stem and leaves can be eaten raw, like the leaves of the 小豆 *siao tou* (*Phaseolus Mungo*).

P., XXVII, 27. *Ch.*, IV, 22, *k'iao jao*. Rude figure. Leguminous plant.

The plant represented in the *So moku* [XIII, 47] under 翹搖, is *Vicia hirsuta*, Koch, but in the *Phon zo* [XLIX, 32] *Lathyrus maritimus*, Bigel.

The *t'iao* in the *Shi king* [423] refers, according to Legge, [on the authority of the Japanese plates] to *Bignonia grandiflora*.

The flowers of the *Bignonia* (*t'iao*) are of a deep yellow; and, farther on:—The flowers of the *Bignonia* (*t'iao*) are gone, there are only its leaves, all green.

Cheng Hüan says:—The *t'iao* here is the same as 陵苕華 *ling t'iao hua*. The flowers are numerous and of a purple colour. *Rh ya*, 164, 165.

Lu ki:—The *t'iao* is also called 陵時 *ling shi* and 鼠尾 *shu wei* (rat's tail). It resembles the 王芻 *wang ch'u* [*v. supra*, 10] and grows in low damp places. The flowers appear in great profusion in the 7th and 8th months, are of a purple colour, like those of the 紫草 *tsz' ts'ao* (*Lithospermum erythrorhizon*). They afford a black dye and are used to dye the hair.

This account does not agree with *Bignonia*. Lu ki confounds several plants, it seems. But the *ling t'iao* or *ling shi*

is *Bignonia grandiflora* or *Tecoma grandiflora*, Del., a beautiful climbing plant with large orange-coloured flowers, common in Chinese gardens. [For further particulars, *v. supra*, 165.]

V. note to 354, *Vicia hirsuta*, Koch. The figure to *P.*, XXVII, 27, looks more like *Lathyrus*.

V. supra, 164, *Tecoma*.

449.—The plants *niao* and *nü lo*, mentioned together in the *Shi*, are correctly identified by LEGGE with the mistletoe and the dodder.

Shi king, 390 :—They are your brethren, all assembled, they are like the mistletoe (*niao*) and the dodder (*nü lo*) growing over the pine and the cypress.

MAO explains the 蔦 *niao* (pronounced also *tiao*) by 寄生 *ki sheng* which is a name for the mistletoe. *Ki* means "to lodge (on trees)"; *sheng* "to grow." CHENG HÜAN refers to the *Rh ya* [262].

LU KI likewise says the *niao* is the same as the *ki sheng*, but the description he gives of the plant is not correct :— Leaves resembling those of the 當盧 *tang lu* (*Phytolacca*), fruit like the 覆盆子 *fu p'en tsz'* (*Rubus*), of a dark red colour and a pleasant sweet taste.

The account given of the plant in question in *P.* [XXXVII, 13–15], where ancient authors are quoted, leaves no doubt that by *ki sheng* a *Viscum* or *Loranthus* is meant. It is said there that the plant grows as a parasite among the branches of various trees (mulberry tree, pine tree, poplar, liquidambar) and that its root is imbedded in the substance of the branches. Roundish, thick leaves, white flowers, red berries like small peas. *Ch*, XXXIII, 35, 桑上寄生 *sang shang ki sheng* (*ki sheng* on a mulberry tree). The rude drawing seems to represent a *Loranthus*. HENRY, *l.c.*, 392 :—The above Chinese name is applied in Hupei to *Loranthus jadoriki*, Sieb., and other species.

Amœn. exot., 785 :—寄生 *ksei*, vulgo *jodoriki*. Viscum baccis rubentibus. Description of the plant. According to Maximowicz this is *Loranthus Kæmpferi*, growing on pine trees in Japan.

Phon zo, XCIII, 8, 9, 桑寄生, *Viscum album*, L. It grows on mulberry trees.

But the character 蔦[19] in *Amœn. exot.* [887] is referred to *Hedera helix*.

E., 180, family 桑上寄生. Figure of a *Loranthus*.
C., 58. *H.*, 35. *Sm.*, 93, 152.

450.—As to the 女蘿 *nü lo*, Mao explains it by 菟絲 *t'u sz'* and 松蘿 *sung lo*. Cheng Hüan says it is called *t'u sz'* when growing on herbaceous plants and *sung lo* when growing on trees. I understand that he means by *t'u sz'* and *sung lo* different plants, not one plant with two names.

The *sung lo* in *P.*, XXXVII, 15, is *Viscum*. *Phon zo*, XCIII, 10, 11, 12, 松蘿樗, *Viscum album*, L., and *Loranthus Kæmpferi*.

The *Rh ya* [131] says that *nü lo* or *t'ang meng* [*see the next*] is the same as *t'u sz'*.

Lu ki :—The *nü lo* is now called *t'u sz'* (rabbit's silk). It twines around herbaceous plants, like gold wire. It is yellow or of a red colour and used in medicine. It is not to be confounded with the *sung lo*, which grows on trees and is of a green colour.

T'u sz' or rabbit's silk is the common Chinese name for dodder, *Cuscuta*. Several species of it are known in China. The most common in the neighborhood of Peking

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[19] *Ch.*, XXVII, 6 figures under the name 蔦蘿松 *niao lo sung* the *Ipomæa quamoclit*, L. This beautiful climbing convolvulaceous plant with pinnate leaves, the pinnæ being filiform, and dark red flowers, is much cultivated at Peking. Popular name *mi lo sung*.
So moku, IV, 21, 蔦蘿, *Ipomæa quamoclit*. [*Jap.*, 1158.]

are *C. chinensis*, Lam. [the whole plant is yellow], and *C. japonica*, Chois. [which is of a purple colour].

P., XVIII, 1, *t'u sz'*. *Ch.*, XXII, 1-3.

Phon zo, XXV, 2, *Cuscuta japonica*.

V. supra, 131.

451.—唐 *T'ang*. This character occurs once in the *Shi king*. LEGGE says the Japanese plates leave no doubt as to the plant being the dodder (*Cuscuta*).

Shi king, 78 :—I am going to gather the dodder (*t'ang*) in the fields of 沫 Mei (north of Honan).

In the *Rh ya* [131] we have 唐蒙 *t'ang meng*, a synonym for *nü lo* and *t'u sz'* (*Cuscuta*). LEGGE says that MAO calls *t'ang* improperly the 蒙 *meng* vegetable, and that the dodder plant is not eaten as food in China. The *t'u sz'* is, however, mentioned in the *Kiu huang* [XLIX, 9] among the edible plants eaten in time of scarcity. The seed is used in medicine.

452.—葛 藟 *Ko lei*. This plant is thrice mentioned in the *Shi king*. LEGGE calls it dolichos creeper. *Lei*, according to the *Kuang ya*, has the same meaning as 藤 *t'eng*, *liana* [*v. supra*, 255].

Shi king, 10 :—In the south are the trees with curved drooping branches, with the dolichos creepers clinging to them. 119 :—*Ko lei*, title of an ode. Thickly they spread about, the dolichos creepers on the borders of the 河 Ho (Yellow River). 446 :—Luxuriant are the dolichos creepers, clinging to the branches and stems.

LU KI :—The *ko lei* is also called 巨苽 *kü ku*. It resembles the 燕 薁 *yen yü* (a wild vine with edible fruit). It is a creeper with whitish leaves resembling those of the 艾 *ai* (*Artemisia vulgaris*). Its fruit is edible, but sour, not very pleasant. In 幽州 Yu chou (Northern Chili) they call this plant 蓷 藟 *t'ui* (*chui*) *lei*.

T'AO HUNG-KING calls this plant 千歲藟, *ts'ien sui lei* (a thousand years liana. Under this name it is spoken of in *P.*, XVIII*b*, 42. It is figured in *Ch.*, XXII, 50. It seems to be a *Vitis*.

Phon zo, XXXII, 3, 千歲藟, *Vitis flexuosa*, THBG.

453.—薟 *Lien*. LEGGE says, regarding this plant, mentioned in the *Shi king*:—Convolvulus, probably the *Ipomœa pentadactylis*, a creeper found abundantly in Hongkong, and called by the common people *wu chau lung*, the five-clawed dragon. *Shi king*, 186:—The convolvulus spreads all over the waste.

According to the *Shuo wen*, this plant is the same as the 白薟 *pai lien* (white *lien*) of the *Pen ts'ao king*.

LU KI:—The *lien* resembles the *kua lou* (in its leaves), but the leaves are smaller and more abundant (*kua lou* is *Trichosanthes*, v. *supra*, 23). The fruit is black, like the 燕奠 *yen yü* (a vine with edible fruit), not edible. In 幽州 Yu chou (Northern Chili) they call it 烏服 *wu fu*. The boiled leaves and stems are employed for feeding cattle, to remove fever.

P. XVIII*b*, 6, *pai lien*. The large white root of the plant is used as a medicine. *Ch.*, XXII, 46. Bad drawing.

So moku, IV, 17, 白薟, *Vitis serianæfolia*, Bge. This is a common plant in the mountains of North China. Its leaves are palmatisect, decompound.

V. supra, 182. *Jap.*, 2373, *Vitis serianæfolia*, Bge., 白薟 and 我抱蜓.

Jap., 2374, *Vitis vinifera*, L., 葡萄.

„ 2368, „ *heterophylla*, Thbg., 蛇葡萄.

„ 2369, „ *inconstans*, Miq., 地錦. *V. supra*, 182.

454.—鶡 *I or ni*. *Shi king*, 211. LEGGE calls it the Medallion plant. The character is properly the name of the medallion pheasant, *Tragopan satyrus* [LEGGE].

The *Rh ya* [26] writes the character with the radical "plants," and calls it ribbon plant.

Williams [*Dict.*, 1098] thinks that it may be a species of *Phalaris* or canary grass. I may observe that our European ribbon grass, the *Phalaris arundinacea*, L., is a common plant in North China. [Compare *infra*, 461.]

455.—There appear in the Classics a number of Chinese names of plants referring evidently to reeds, rushes, sedges and the like. Only a few of these terms are still in use: the greater part have disappeared, probably a long time ago, from the spoken language.

We have first the 葦 *wei* and the 蘆 *lu*, both names applied in Northern China to the common reed *Arundo phragmites*, L. Three or four more names for reeds, now obsolete, occurring in the odes of the *Shi king*, are said by some of the ancient commentators to refer to the various stages in the process of growth of the common reed or others. I quote the passages where these names are mentioned:—

Shi king, 104:—Who says that the 河 Ho (Yellow River) is wide? With a bundle of reeds (葦 *wei*) I can cross it. 228 ["Life in Pin"]:—In the eighth month are the sedges (萑 *huan*) and reeds (葦 *wei*). 337:—Deep looks the pool and abundantly grow the rushes (萑 *huan*) and reeds (葦 *wei*). 472:—In thick patches are those rushes (葦 *wei*) by the way. Let not the cattle and sheep trample them.

Hia Calendar, 80 [七月莠蘿葦]. Douglas translates:—In the seventh month flourish the creeping plants and rushes. The fourth character, *kuan*, which Douglas renders by creeping plants, is evidently a mistake for 萑 *huan*. See the corresponding sentence [above quoted] *Shi king*, 228 ["Life in Pin."]

Li ki, I, 277 [*Yüe ling*] :—Third month of summer. Orders are given to the superintendent of the meers to collect and send in the rushes available for use (材 葦).

Doctrine of the Mean, 269 :—Their government might be called an easily growing rush (蒲 蘆 *p'u lu*). LEGGE says *lu* is the same as *wei* [*c. supra*], which, as well as *p'u*, is the name of various rushes or sedges. Regarding *p'u* see 375.

Shi king, 36 :—Strong and abundant grow the rushes (蒹 *kia*).

96 :—

The waters of the 河 Ho (Yellow River), wide and deep,
Flow northward in majestic course;
The nets are dropt into them with a plashing sound,
Among shoals and sturgeon, large and small,
While the rushes (蒹 *kia*) and sedges (荻 *t'an*) are rank about.

195 :—The reeds (蒹 *kien*) and rushes (蒹 *kia*) are deeply green. 121 :—His robes of rank glitter like the young sedge (荻 *t'an*).

Regarding the above terms we find the following explanations in the *Rh ya*, the *Shuo wen* and the ancient commentaries :—

蘆 *lu*, according to the *Rh ya* [213] is the same as 蒹 *kia*, and [in 211] the *Rh ya* identifies *kia* with 華 *hua* (flower). MAO says *kia* is the same as 葦 *wei*, and LI SÜN that the *wei* when it begins to grow is called *kia*. *Shuo wen* :—*Kia* is a name for the *wei* before it has flowered, and *wei* is explained by *ta kia* (the great *kia*). *Rh ya*, 210 :—*Wei*, same as 醜 芀 *ch'ou t'iao*. *Shuo wen* :—芀 *t'iao*, same as the *wei* in flower. HING PING explains that *wei* is a term applied to the *lu* when it is full grown, in grain.

From the above quotations it appears that the names *lu* and *wei* in ancient times were referred to the same plant as nowadays. *Lu* and *wei* are common names in Northern

China for the *Phragmites communis*, Trin., (*Arundo phragmites*, L.) the common reed. In Hupei, according to HENRY [*l.c.*, 253], 蘆柴 *lu ch'ai* is *Phragmites Roxburghii*, Kth. The character *ch'ai* means faggots.

蒹 *Kien*, according to LEGGE, a kind of rush or sedge. *Rh ya*, 212, same as 薕 *lien*. KUO P'O says it resembles the 雚 *huan*. The *Shuo wen* explains *kien* by *huan* which has not yet flowered.

The character 雚 *huan* with the meaning of reed is not found in the *Rh ya*. But we have there [25] the same character pronounced *kia* or *ch'ui* and applied to *Leonurus*. The *Shuo wen* writes this character 萑 *huan* and identifies it with 氾 *wan* [*see the next*].

WILLIAMS [*Dict.*, 247] says 雚 and 莞 *huan* may denote the same plant, but this is probably rather a sort of *Juncus* or *Cyperus*, as it has no blossoms. LEGGE translates 莞 *huan* in the *Shi king* by rush mats. [305] :—The rush mat (*huan*) below and that of fine bamboo above.

The *Shuo wen* explains this character by :—A plant fit for making mats. CHENG HÜAN says, regarding the same character :—It is the name of a plant which grows in a bushy manner, in the water. It has a round stem. In Kiangnan mats are woven of it. It resembles a small 蒲 *p'u*, but has no fruit. [Compare the *Rh ya*, 98.] According to KUO P'O this character is to be pronounced *kuan*. [*See also* the *Rh ya*, 16.] The *Shuo wen* states that the plant 蔺 *lin* is also a kind of *huan*. [*V. supra*, 176.]

The 蒬 *t'an* in the *Rh ya* [214] is identified with the 氾 *wan*. The young sprouts are called 薍 *k'üan*. MAO says the *t'an* is also called 鵻 *chui* (properly a pigeon). It is a name for the young sprouts of the 蘆 *lu*. HING PING says that 荻 *ti* is another name for it.

Lu ki gives the following account of the above-mentioned reeds:—The 蒹 *kien* grows in water. Cattle thrive on it when it is in seed, and get fat and strong. The people of 青州 Ts'ing chou and 徐州 Sü chou (Northern Shantung and Northern Kiangsu) call it *kien*, and in 兗州 Yen chou (South-western Shantung) and Liaotung they use the same name. The 葭 *kia* is the same as 蘆 *lu*. The 菼 *t'an* or 薍 *wan* is also called 荻 *ti*. In autumn, when the plant is getting hard and its seeds ripen the people term it 萑 *huan*. Its heart (marrow) is pulled out from below. The root is of the size of a goose's quill, tapering. The people of Yang chou (Chekiang, Anhui) call it *ma wei* (horse's tail).

Kung Ying-ta is of opinion that the above classical names of plants refer to three kinds of reed. He says one of these plants is called *kia* when it begins to grow, *lu* when it flowers, and *wei* when it is full grown and in seed (this is the common reed, *Phragmites communis*). Another plant is called *t'an* when it begins to grow, *t'an* when it increases in growth, and *huan* when it is in seed. The third plant is the *kien*.

The common reed, *Phragmites communis*, is treated of in *P.*, XV, 76, *lu*, *wei*, *kia*. A good drawing of the plant is found in *Ch.*, XIV, 10. The *Kiu huang*, LIII, 13, figures under the name 蘆筍 *lu sun* (*lu* sprouts) a young plant of this reed. The sprouts of the *Phragmites communis* are eaten in China like those of the *p'u* or *Typha*, and are also employed in medicine. At Peking coarse mats are woven of the split reed.

Amœn exot., 900, 葦 *I*, vulgo *assi*, *jussi*. Arundo palustris vulgaris, foliis latioribus, calamis firmis, ex quibus puto penicilla scriptoria confici. *Phon zo*, XVI, 9-11, 蘆. *Phragmites communis*.

Li Shi-chen [in *P.*, *l.c.*], in accordance with K'ung Ying-ta's classification of the reeds, distinguishes three kinds, viz. :—

1.—Culm more than 10 feet high, hollow inside ; skin thin, of a whitish colour. It is called *kia*, *wei* and *lu*. This is the common reed already spoken of. [Comp. Henry, *l.c.*, 253.]

2.—Culm shorter and smaller than that of the *wei* or *lu*, hollow inside ; skin thick, of a dark green colour. This is called *t'an*, *wan*, 荻 *ti* or 萑 *huan*.

3.—The *kien*, a small reed with a solid stem (not hollow inside).

I am not prepared to say what reeds or reed-like plants were denoted by *ti*, alias *t'an*, *wan*, and by *kien* in the Classics. The name *ti* is still used in China for a peculiar kind of small reed. [Compare an article by a contributor to *Notes and Queries on China and Japan*, 1869, p. 97, on the "Reeds of the Yang tsz'." The author of this interesting paper states, from his own observation it seems, that the immense reeds grown along the banks of the Great River are of two kinds, one called the *lu*, the other the *ti*. The former is said to grow towards the mouth of the river, near Nanking and Chinkiang, the latter higher up, in the vicinity of Anking, where there is a river known as the 荻江 Ti kiang, after the reeds produced along its banks. Outwardly there is little difference in the appearance of these reeds ; the chief distinction is that the *lu* are hollow, and the *ti* pithy inside. Perhaps the *ti* is a plant well known to botanists, but which has not yet been identified with the Chinese name, which is sometimes also written 蔗 *ti*.

The *Phon zo* figures [XVI, 11, 13] under 荻 two gramineous plants, not identified by Franchet. In Siebold's *Syn. plant. œcon jap.* [39] 荻 appears as one of the Chinese names

applied to *Erianthus japonicus* [*v. supra*, 188]. The *So moku* [XVI, 35] gives 荻 as the Chinese name for *Gnaphalium margaritaceum*, L. But this may be a mistake, for HOFFM. & SCHULTES [50] apply the character 荻 [pronounced *ts'iu* in Chinese, *W.D.*, 1001] to the same plant.

With respect to the 莞 *huan*, a rush, of which in ancient times mats were made, I may notice that in HOFFM. & SCHULTES [308] *Juncus effusus*, L., appears with the Chinese names 燈心草 (lamp-wick grass), 席草 (grass for making mats) and 莞. The pith of this rush is largely used in China for lamp-wicks. Mats are also made of *Juncus effusus*, as HENRY [*l.c.*, 450] reports. [See also *P.*, XV, 91, and *Ch.* XIV, 37.]

Very fine mats, said to be manufactured in the interior of China, are sold at Peking under the name of 龍鬚席 *lung sü si* (dragon's whisker mats). The *lung sü* plant, also called 石龍芻 *shi lung ch'u* and 懸莞 *hüan huan*, is spoken of in *P.* [XV, 90] as a plant of which mats are woven. [Comp. *Rh ya*, 16, 176; *Ch.*, XI, 39.]

Phon ts, XVI, 21, 石龍芻, figured as a fine-leaved grass.

In an interesting article on the sources of China matting, published in the *Journal of Botany*, 1879, p. 99, the late Dr. HANCE noticed the *Lepironia mucronata*, Rich., (*Cyperaceæ*) and the *Cyperus tegetiformis*, Roxbg., as furnishing the material for mats at Canton.

SIEBOLD, *Syn plant. œcon. jap.*, 42:—*Zizania palustris*, *kojosi*, 蘺. Culmi pro munimento ad imbres adhibentur. SIEBOLD'S *Zizania palustris* is *Hydropirum latifolium*, Griseb. [*v. supra*, 350].

V. supra, 210. *Jap.*, 1610, *Phragmitis communis*, Trin., 蘆.
Phragmitis communis, Trin., var. *longivalvis*, Miq., 荻蘆竹.
„ 1611, *Phragmitis japonica*, Stend., 芩.

Jap., 1198, *Juncus balticus*, Deth., 石龍芻. *V. supra*, 16.
„ 1335, *Luzula campestris*, DC., 地楊梅.
Cyperus [*v. supra*, 97].
Several kinds of *Polypodium* are called 草, *v. Jap.*, 1722, *ff.*

456.—茢 *Lie.* A plant mentioned in the *Li ki*, the *Chou li* and the *Rh ya.* LEGGE calls it a reed. It was employed by sorcerers.

Chou li, II, 248 :—Le pêcher (桃 *t'ao*) et la plante *lié* employés dans la cérémonie du serment. Commentator B. (CHENG HÜAN) :—Le pêcher est redouté des esprits. Les vergettes faites avec la plante *lié* servent à expulser les mauvais présages.

Li ki, I, 172 :—When a ruler went to the mourning rites for a minister, he took with him a sorcerer (巫) with a peach wand (桃), an officer of prayer with his reed [brush] (*lie*) and a lance-bearer, disliking [the presence of death]. CHENG HÜAN explains *lie* by 雀苕 *huan t'iao*, and says it has the power to sweep away evil. Regarding *huan*, see 455; the second character stands for 芀 (reeds in flower). [*V. Rh ya*, 210].

TSO CHUAN, 544, 547 :—Accordingly a sorcerer was employed, who first executed the sprinkling with a branch of a peach tree and some reeds (桃 茢).

The character *lie* in the *Rh ya* is applied to three different plants [35, 142, 193] but not to a reed.

As to the peach wand employed in sorcery, it seems not quite sure that by *t'ao* in the above-quoted passages really a peach tree is to be understood. In the *Shan hai king* 桃枝 *t'ao chi* (peach branch) is repeatedly mentioned as the name of an herb, sometimes also as the name of a tree. The *Shan hai king* mentions also a plant 鉤端 *kou tuan*. KUO P'O says it is a kind of *t'ao chi*. The *Kuang ya* gives both names as

synonyms. Finally, in the *Rh ya* [170] it is plainly stated that the *t'ao chi* is a kind of bamboo.

V. supra, 193.

457.—臺 *T'ai* (now written 薹). LEGGE says a kind of rush.

Shi king, 272 :—In the hills of the south (of Chou) is the *t'ai*. 409 :—Hats (*li*) of the leaves of the *t'ai* (臺 笠).

In the *Rh ya* [73] it is called *fu sü* (poor man's need). It has also been identified, but incorrectly, with the plant described in the *Rh ya* [97, *q.v*].

LU KI :—Its old name is *fu sü*. It is also called 莎草 *so ts'ao*. The plant can be made into rain-cloaks (簑 *so*) and hats (笠 *li*). Some say that it was used for the black silken caps of the officers. The soft smooth skin of the plant is fit for making umbrellas impervious to rain. In the southern mountains it is a common plant.

The *Rh ya i*, after having noticed the *t'ai* or *so* plant used for making rain-cloaks and hats, speaks of another *so* plant in the following terms :—The stalks and leaves of the *so* are like those of the 三 稜 *san leng* the three-cornered grass). [The genera Cyperus and Scirpus and other Cyperaceous plants have generally triangular stems]. The roots resemble the 附 子 *fu tsz'* (small tubers of Aconite) are very hairy, and known under the name of 香 附 子 *hiang fu tsz'* (fragrant *fu tsz'*).

These tubers are generally of the size of an apricot kernel, but sometimes as large as a jujube. This is the *Cyperus rotundus* [*v. supra*, 97].

As to the other *so* plant, the *t'ai* of the *Shi king*, used for making hats and rain-cloaks, these names have been referred by Japanese botanists to various Cyperaceous plants.

SIEBOLD, *Syn. plant. œcon. jap.*, 10 :—*Scirpus macrostachyus* (same as *Sc. maritimus*, L.) 簑 衣 草 (rain-cloak grass) or 薹. Japonice *suge*. Pro pileis aliisque utensilibus.

Hoffm. & Schultes, 539 :—薹, *Scirpus maritimus*, and 120, same Chinese name, *Carex cæspitosa*, Thbg. *Ibidem*, 192, 莎草, *Cyperus Iria*, L.

Japanese hats made of the *kasa suge* or *Scirpus maritimus* were exhibited in 1878 at Paris. [*See* Mène, *Prod. végét. du Japon*, 1885, p. 138.]

Mao explains the character 蓑 *so* by 草衣 (clothes made of grass). K'ung Ying-ta adds that these clothes protect against rain. [Comp. also *Shu king*, 108. Tribute of Yü :— The wild people of the islands brought garments of grass 卉服 *hui fu*.]

Nowadays the Chinese agricultural labourers wear rain-cloaks, *so-i* and hats made out of the hair-like bracts of a palm, the *Chamærops Fortunei*, Lindl. [*See* Fortune's *Wanderings*, 53, 54.]

V. supra, 73, 97.

Jap., 452, *Carex dispalatha*, Boott, 臺.

458.—The *Shan hai king* mentions a plant 蕃草 *fan ts'ao*. Kuo P'o explains that it is the 青蕃 *ts'ing fan*, which resembles the 莎 *so* but is larger. He evidently means the 青蘩 *ts'ing fan*, a plant mentioned in one of the poems of Sz'ma Siang-ju [† 126 B.C.], together with the 莎 *so*, and the 薜 *sie*, and in Chang Heng's poem *Nan tu fu* [After Han dynasty] together with 蘼 *piao*, 莞 *huan* and 苹 *ch'u*. The *Shuo wen* says that the *ts'ing fan* resembles the *so*. Thus we may suppose that it was a cyperaceous plant.

As to the other plants noticed by the ancient poets, the *ch'u* is *Behmeria nivea* [*v. supra*, 391], the *huan* a rush [*see* 455]. Regarding the *piao*, a sedge grass, see the *Rh ya* [209].

The 薜 *sie* is said by a commentator on Sz'ma Siang-ju to be the same as the 蘪蕪 [*see* the *Rh ya*, 119]. But the dictionary *yü pien* explains it by *so*.

Amœn. exot., 900, 薜, *setz*, vulgo *suge*. Herba palustris, foliis arundinaceis brevioribus tensis, ex quibus ad albedinem

redactis construuntur elegantissimi pilei, quibus teguntur deambulantes fœminæ. *Suge*, as we have seen, is the Japanese name for *Scirpus maritimus*.

459.—茅 *Mao* or 白茅 *pai mao* (white *mao*),[20] a grass repeatedly mentioned in the Classics. LEGGE calls it the white grass.

Shi king, 34:—A dead antelope wrapped up with the white grass (*pai mao*). 232 ["Life in Pin"]:—Let us in the daytime collect the grass (*mao*) and at night twist it into ropes. 416:—The fibres from the white-flowered rush. 白華菅 [*see the next*] are bound with the white grass (*pai mao*).

Chou li, I, 84:—Le préposé au territoire hors banlieue fournit quand il y a des sacrifices les plantes odoriférantes [*sino*, *r.* 435] et les herbes pour envelopper (*mao*). Commentator B. (CHENG HÜAN):—Les secondes servent pour envelopper les pièces des victimes et clarifier le vin dans les sacrifices offerts aux génies de l'intérieur et de l'extérieur.

Li ki, I, 446 [Sacrifices]:—In straining the new liquor for the cup they used the white *mao* grass. II, 165:—At the burial of a great officer, the progress of the bier was guided by the chief artizan with a reed of white grass (*mao*) in his hand.

TSO CHUAN, 139, 140. [B.C. 655.] LEGGE's translation reads:—Your tribute of covered cases of the three-ribbed rush [the Chinese text has only 貢包茅, tribute of *mao* grass for wrapping up,] is not rendered, so that the king's sacrifices are not supplied with it, and there is nothing with which to strain the spirits.

See also the *Rh ya* [183].

LI SAO, 55:—Les herbes *tsuen* et *houi* [fragrant herbs, *r.* 417, 406] sont transformées en herbes *mao* ou mauvaises herbes.

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[20] It is not to be confounded with the 茅香 *mao hiang*, a fragrant grass, according to LOUREIRO, *Flora cochin.*, 793, *Andropogon schœnanthus*, L. Comp. *P.*, XIV*b*, 68; *Ch.*, XXV, 71. *Phon zo*, XI, 8.

Lu ki, 23:—In ancient times the white *mao* was used to wrap up things offered in sacrifices, and also for straining wine.

P., XIII, 45, *pai mao*. Li Shi-chen says:—*Mao* is a general name including several species. Besides the *pai mao* there are the *huang mao* or yellow *mao*, the *hiang mao* or fragrant *mao*, the *kien mao* [*see the next*] and others. All these have the same leaves. The difference is in the flowers. The *pai mao* or white *mao* is a small plant. It flowers in the fourth month; white flowers in panicles; small seeds. Its root is white, very long and thin, resembling a sinew: it has joints, is of a sweet taste. In the *Pen ts'ao king* this drug is called 茅根 *mao ken* (*mao* root). It emits light in the night. The plant is also used for thatching houses.

In the Peking mountains the people apply the name *mao* to *Imperata arundinacea*, Cyrill, and *I. sacchariflora*, Maxim., beautiful grasses with long leaves and spike-like panicles, with long silvery white silky hairs on the glumes. The plant represented under *pai mao* in *Ch.*, VIII, 8, may be an *Imperata*. The *Kiu huang* [LIII, 14] figures the young sprouts with the root of the *mao* grass. These sprouts are eaten by the people, like those of *Typha* and *Phragmites*. *P.* [*l.c.*] terms them 茅針 *mao chen* (*mao* needles).

According to Loureiro [*Flora cochin.*, 67], in South China the Chinese name *mao ken* (*mao* root) is applied to *Saccharum spicatum*, L., (radice perenni, repente, articulata). This plant is now called *Perotis latifolia*, Ait. Henry [*l.c.*, 272, 433]:—In Hupei, *Imperata arundinacea*, Cyr., is called *mao* or *sz' mao* (silky *mao*).

Amœn. exot., 899, 茅 *boo*, vulgo *tsubanna*. Gramen arundinaceum caule longiori, panicula sparsa. Thunberg thinks [*Flora jap.*, 42] that Kæmpfer refers to *Saccharum spicatum*. But Thunberg's *S. spicatum*, in Franchet and Savatier's *Enum. Pl. Jap.*, II, 188, is referred to *Imperata arundinacea*. In Siebold's *Syn. plant. œcon. jap.*, 46, we have *amame*,

茅根, Graminea obscura, in gonorrhœa ab agricolis laudata. See also the plants figured in the *Phon zo*, VIII, 1, 2, under 茅 and 白茅. At Peking *Anthistiria arguens*, Willd., is called 黃茅 *huang mao*. The mountain people use this coarse grass provided with rigid awns, for thatching roofs. HENRY [*l.c.*, 142] refers the *huang mao* figured in *Ch.*, VIII, 10, to *Heteropogon hirtus*, Pers., which he terms "spear grass" and which at Ichang is much used for thatch.

It cannot be ascertained what the 青茅 *tsing mao* of the *Shu king* was. It is noticed there [112, "Tribute of Yü"] as a product of the Province of 荆州 King chou (Hukuang). LEGGE calls it the three-ribbed rush. The three-ribbed rush (when presented as tribute) was put in cases, which again were wrapped up.

CHENG HÜAN explains that this grass was a kind of *mao*, having three ridges (三脊) and provided with hairs and prickles (stiff awns), and used for straining the sacrificial wine. K'UNG AN-KUO takes *tsing* and *mao* to be different, and suggests that *tsing* is mentioned in the *Chou li* as a vegetable [*v. supra*, 361]. But there is a statement by 管子 KUAN TSZ' [who lived in the 7th century B.C.] which has come down to us, saying that between the Kiang and the Huai river (Kiangsu, Anhui) a grass is found whose leaves have three ridges and which is called 青茅 *ts'ing mao*.

I may notice that SIEBOLD [*Syn. plant. œcon. jap.*, 45] mentions a Graminea obscura tinctoria sinice 青茅, japonice *karias*. This is, I suspect, the *Imperata tinctoria*, Miq., [Prol. *Fl. japon*, 177]:—Ad viride tingendum adhibetur, teste Siebold. But according to KÆMPFER [*v. infra*, 461] *karrias* is *Phalaris arundinacea*.

Another kind of *mao* grass is, according to LI SHI-CHEN, the 芒 *mang*, regarding which see the *Rh ya* [188].

Jap., 1146, *Imperata arundinacea*, Cyr., 白茅. *H.* 272. *C.*, 825. *S.*, II, 34.

„ 1147, *Imperata tinctoria*, Miq., 青茅.

„ 1094, *Hierochloa borealis*, Rœm. & Schult., 茅香.

Saccharum spicatum, v. *Sm.*, 188. *A.*, XV, 182.

Pr., 222, gives *Eulalia japonica*, Trin., as 茅東.

460.—菅 *Kien*, a grass mentioned in the *Shi* and likened to the *mao*. LEGGE calls it the white-flowered rush or rope-rush.

Shi king, 209 :—The moat of the east gate is fit to steep the rope-rush *(kien)*. 416 :—The fibres of the white-flowered rush (白華菅) are bound with the white grass (*mao*, see the preceding). In the *Shi king* [146] the character 荼 *t'u*, generally applied to the sow-thistle, denotes, according to the Chinese commentators, the *kien* grass [*c. supra*, 365].

In the *Rh ya* [48] we have the wild *kien*, also called the white-flowered. KUO P'O says it is a kind of *mao*. MAO explains that the *kien* is the same as the *mao*, which after it has been steeped is called *kien*. In the *Shan hai king* it is stated that mats were made out of the white *kien* and used in the sacrifices to the mountain spirits. *Li ki*, II, 469, "Mourning Rites." 菅履 LEGGE translates "sandals of straw."

LU KI :—The *kien* resembles the *mao*, but it is glabrous. The root contains a white flour. The plant is flexible. After steeping and drying it, strings and cordage can be made of its fibres.

P., XIII, 45, speaks of the *kien* under the head of *pai mao*, as of a grass akin to the *mao*. It has prickly awns, flowers in autumn (the *mao* flowers in summer). *Ch.* [VIII, 9] figures under *kien* a Graminea which HENRY [*l.c.*, 343] identifies with *Anthistiria ciliata*, L., a kind of "spear grass" in Hupei where it is also known under the name of 苞子草 *pao tsz' ts'ao*.

The *pao* grass is mentioned in the *Li ki* [I, 103] :—One should not enter the ruler's gate in rush sandals (苞履). The *Shuo wen* says the *pao* is a grass of which the people of 南陽 Nan yang (Honan) make coarse shoes. In the *Han shu* [quoted in *K.D.*] it is stated that the *pao* is also fit for being woven into mats.

The *Tso chuan* [369, 372], referring to the year B.C. 580, quotes a passage from an ode of the *Shi king*, now lost, which reads as follows :—

> Though you have silk (絲) and hemp (蔴)
> Do not throw away your grass (菅) and *rushes*.

What LEGGE translates by rushes is 蒯 *k'uai* in the Chinese text. The ancient commentary says that it is a grass akin to the *kien*.

The *I li* [chapter on Mourning Rites] notices shoes made of *k'uai* and 蕑 *piao* grass [*c. supra*, 458]. According to some authors of the Han, quoted in *K.D.*, the *k'uai* was also used for making cords and mats.

P., XXIII, 14, *k'uai*. CH'EN TS'ANG-K'I [8th century] says that the seeds of the *k'uai* grass are eaten by the people like rice.

HOFFM. & SCHULTES, 538, 蒯. *Scirpus cyperinus*, Kth. But the drawing in the *Phon zo* [XLI, 17-18] under this Chinese name looks rather like *Andropogon tropicus*, Sprengel.

KUO P'O, in commenting upon the *Shan hai king*, says that the 薦 *kien*, repeatedly mentioned there, is akin to the 菅 *kien* and the 茅 *mao*, and that the 荀 *sün*, spoken of in the same work, is the same as the 苞 *pao*. Only the description of the *sün* in the *Shan hai king* (yellow flowers, red fruit which makes those who eat it handsome) does not agree with this identification.

Jap., 2020, *Scirpus Eriophorum*, Michx., var. *nipponicus*, Fr. & S., 蒯草.

„ 2024, *Scirpus maritimus*, L., 荆三棱.

„ 2025, „ *mucronatus*, L., var. *subleiocarpus*, 水毛花.

„ 2028, „ *plantagineus*, Retz. [*v. supra*, 59].

461.—綠 *Lü*, name of a plant mentioned in the *Shi king*. LEGGE terms it "king grass." The character is more correctly written 藘. 411:—All the morning I gather the king grass, and do not collect enough to fill my hands.

The *Rh ya* [10] writes 菜 *lü*, same as 王芻 *wang ch'u* (king grass). This name occurs in the *Li sao*. [*See* the quotation under 421, *supra*.]

LU KI:—The *lü* plant resembles the bamboo; it grows to the height of five or six feet. The people living on the 淇 K'i river (a tributary of the Wei, in the north-east of Honan) call it 菜竹 *lü chu* (*lü* bamboo) for the stem and the leaves are like the bamboo and of a dark green colour.

The *Rh ya i* says that the *Pen ts'ao* identifies the *lü* plant of the *Shi* with the 蓋草 *tsin ts'ao*. This latter plant is treated of in *P.* [XVI, 86]. It is said there that it is also called *huang ts'ao* (yellow grass), for the plant affords a yellow dye (it is not stated whether the leaves or the root). In ancient times the people were obliged to collect this tinctorial plant for the king's stores, whence the name "king's grass." *Ch.* [XI, 72] figures under *tsin ts'ao* the leaves of a grass.

Amœn. exot., 899:—蓋 *dsin*, vulgo *karrias*, *kakkina*, *arai*. Gramen arundinaceum minus, Tab. Gramen arundinaceum spicatum, C.B.P. Judging from KÆMPFER's references, this would be *Phalaris arundinacea*, L. [*See also* THUNBERG, *Flora japon.*, 44, and *supra*, 454 and 459 at the end.] SIEBOLD says that *karias* is the name of an obscure tinctorial plant in Japan. As far as I know, *Ph. arundinacea* is not a tinctorial plant. But the plant is common in China as well

as in Japan. The 薯 in the *Phon zo* [XX, 14, 15] is not *Phalaris*.

Jap., 232, *Arthraxon ciliare*, Beauv., 蓋草.

462.—稂 *Lang*. LEGGE calls it wolf's-tail grass, a kind of weed, or darnel.

Shi king, 224:—Cold come the waters down from that spring and overflow the bushy wolf's-tail grass. 380:—Picture of husbandry, growth of the grain described:—

> **It ears and the fruit lies soft in the sheath,**
> **It hardens and is of good quality,**
> There is no wolf's-tail grass, no darnel [*yu*, see the next].

Rh ya, 189, *lang*, same as 童粱 *t'ung liang*.

CHENG HÜAN explains:—Grain that flourishes, but does not form seeds is called *t'ung liang* (blasted ears of grain).

LU KI repeats the above explanation and then says that now the people call the plant mentioned in the *Shi*, 宿田翁 *Su t'ien weng* or 守田 *shou t'ien*. In the *Wai ch'uan* [WYLIE'S *Notes*, p. 6] it is stated that horses are fond of the *lang* and the *yu* [*see the next*].

The *Rh ya i* says that the *lang* plant is a bad weed growing in corn-fields among cultivated grain. But it affords a valuable food for cattle.

P., XXIII, 14, 狼尾草 *lang wei ts'ao* (wolf's-tail grass). It is said to be the same as the plant *lang* of the *Shi king* and of the *Rh ya* [189], and as the *meng* or *lang wei* (wolf's tail) of the *Rh ya* [20]. LI SHI-CHEN states that the plant resembles the *su* (*Setaria italica*), but its ears are of a yellowish purple colour and provided with bristles. In time of scarcity it supplies food. *Ch.*, XIII, 25.

The drawing in the *Phon zo* [XLI, 15, 16] under 狼尾草 seems to represent *Gymnothrix japonica*, Kth., figured in THUNBERG'S *Flora japon.* [p. 48, tab. 9] under the name of *Panicum hordeiforme*. It is also the same as his *Cenchrus*

purpurascens, and a common plant in Japan and China. The long spike is conspicuous by the numerous purplish awnlike bristles that almost conceal the flower. This agrees with the Chinese description of the wolf's-tail grass.

463.—莠 *Yu*. This is another gramineous weed in cornfields, repeatedly mentioned in the Classics. LEGGE translates the name by weeds injurious to grain, darnel, fescue.

Shi king, 157 :—Do not try to cultivate fields too large: the weeds (*yu*) will only grow luxuriantly. 380 :—See the quotation *supra* in 462 :—No wolf's-tail grass, no darnel (*yu*).

Li ki, I, 256, *yu* translated by darnel. See the quotation under 431.

The character *yu* occurs thrice in the *Hia Calendar* [56, 58, 80], but it seems that it stands there for 秀 *siu* (to flourish).

Mencius, 377 :—MENCIUS said, I hate the darnel (*yu*) lest it be confounded with the corn (苗).

The Chinese commentators say the *lang* [*see the preceding*] and the *yu* are plants injurious to the grain (害苗). The *Shuo wen* says the *yu* is a plant which grows among grain. Not mentioned in the *Rh ya*.

P., XVI, 63, 狗尾草 *kou wei ts'ao* (dog's-tail grass). It is said to be the same as the *yu* of the Classics. LI SHI-CHEN says it is a common grass, resembling the *su* (*Setaria italica*), but is smaller. *Ch.*, XII, 4, *yu* or *kou wei ts'ao*. The figure seems to be intended for *Setaria viridis*, Beauv., as also the drawing under the same names, *Kin huang*, LII, 8. At Peking even nowadays the classical name *yu* is applied to *Setaria viridis*, a very common grass. The people term it generally 穀莠子 *ku yu tsz'* (the *yu* of the grain).

E. H. PARKER, *Chinese Names of Plants* :—The name *kou wei ts'ao* in Sz ch'uan is applied to *Gymnothrix hordeiformis*,

Beauv., at Canton to *Setaria glauca*, Beauv. HENRY [*l.c.*, 180] :—*Kou wei ts'ao* in Hupei = *S. glauca*.

Amæn. exot., 899 :—莠 *ijuu*, vulgo *fankusa*, *jeno konkusa*, *innubie*. Gramen paniceum, I. Tabern. Gramen paniceum spica simplici, C. Bauh, P. KÆMPFER's references seem to point to *Setaria glauca* or *viridis*, but THUNBERG [*l.c.*, 43] thinks that he means *Paspalum villosum*.

Jap., 1246, *Leptatherum japonicum*, Fr. & S., 莠竹.

Other *Gramineæ* and *Cyperideæ* identified by the Japanese are :—

Gramineæ :—

Jap., 117, *Alopecurus geniculatus*, L., 看麥娘.
" 233, *Arundinaria japonica*, S. & Z., 千里竹.
" 311, *Avena fatua*, L., 蕪麥.
" 314, *Bambusa aurea*, Sieb, 鳳尾竹.
" 315, " *nana*, Roxb., var. *gracillima*, Krz., 紫竹.
" 318, " *senanensis*, Fr. & S., var. *albo-marginata*, Fr. & S., 山白竹.
" 319, *Bambusa sterilis*, Krz., 人面竹.
" 336, *Beckmannia cruciformis*, Host., 茵草. [*V. supra*, 151.]
" 370, *Brachypodium japonicum*, Miq., 鵝觀草.
" 371, " *sylvaticum*, Rœm. & Schult., 燕麥 [*v. supra*, 32, 335].
" 380, *Bromus japonicus*, Thbg., 雀麥 [*v. supra*, 32].
" 650, *Coix agrestis*, Lour., 薏苡.
" 651, " *lacryma*, L., 川穀.
" 853, *Eleusine coracana*, Gærtn., 龍爪穗.
" 879, *Eragrostis ferruginea*, Beauv., 知風草.
" 904, *Eulalia japonica*, Trin., 芒 [*v. supra*, 188].
" 1098, *Hordeum vulgare*, L, 大麥.
" 1327, *Lophatherum elatum*, Zoll, 淡竹葉.
" 1555, *ff. Panica* [*v.* 28]. *Phragmitis*. [*V.* 455].
" 1584, *Pannisetum japonicum*, Trin., 戾草.
" 1959, *Saccharum officinarum*, L, 甘蔗.
" 2112, *Sorghum* [*v.* 335].

Jap., 2395, *Zea mays*, L., 玉蜀黍.

„ 2401, *Zizania aquatica*, L., 菰.

„ 2406, *Zoysia pungens*, Willd., 結縷草.

Cyperaceæ:—

Jap., 472, *Carex dispalatha*, Boott., 臺 [*v.* 457].

„ 485, „ *macrocephala*, Willd., 薹草.

„ 494, „ *pachygyna*, Fr. & S., 崖櫰.

„ 740, *Cyperus rotundus*, L., 香附子 [*v. supra*, 97].

„ 741, „ *serotinus*, Roth., var. *depauperata*, Fr. & S., 草三稜.

„ 743, „ *umbellatus*, Bth., 磚子苗.

„ 956, *Fimbristyles diphylla*, Vahl., var. *tomentosa*, Bth., 飄拂草.

„ 1218, *Kyllingia monocephala*, L., var. *leiolepis*, Fr. & S., 水蜈蚣.

„ 1300, *Lipocarpha microcephala*, Kth., 湖瓜草.

„ 2020, *Scirpus* [*v.* 460].

464.—莽草 *Mang ts'ao*. A poisonous plant mentioned in the *Chou li* [II, 389]:—Le destructeur est chargé d'expulser les teignes. Il les attaque par le sacrifice conjuratoire. Il fait contre eux des fumigations avec la plante *mang*.

The same plant (*mang ts'ao*) is stated in the *Shan hai king* to be employed for stupefying fish. The same is said there regarding the plant 芒草 *wang ts'ao*.[21]

The character 莽 *mang* has several meanings. According to the *Rh ya* [169] it is a kind of bamboo. The *Fang yen* says that in the southern part of 楚 Ch'u (Hunan) it means 草 herbs. The *Shuo wen* explains the character by "thick grass, jungle."

In *P.* [XVII*b*, 47] 莽 *mang* is given as the name of a poisonous plant, also called 蒗 (to be pronounced *wang*).

[21] Kuo P'o here gives the pronunciation *wang* for the first character, which is generally pronounced *mang*. [*V. supra*, 188] where 芒 *mang* denotes a grass.

芒草 *wang ts'ao* and 鼠莽 *shu mang* (rat's *mang*). It is identified with the plant *wei* or *ch'un ts'ao* [*Rh ya*, 147]. From the ancient authors quoted in *P.* regarding the *mang ts'ao* we learn that this plant is not uncommon in Sz'ch'uan and Central China. Some say it is a twining plant, others a tree. It is poisonous and employed by the people to poison fish and rats. *Ch.*, XXIV, 52 represents under *mang ts'ao* a plant with serrate leaves and flowers not unlike those of Aconite.

In Japan the Chinese character *mang* is applied to *Illicium religiosum*, Sieb., a small tree held sacred by the Japanese, and found also in Southern China. Its seeds and leaves possess poisonous properties. But the Chinese poisonous plant *mang* is quite different.

Amœn. exot., 880, 881, 鼠莽, *skimmi*, with figure, is *Illicium religiosum*. Sieb. & Zucc., *Flora japon.*, I, 5, tab. 1, and *Phon zo*, XXIV, 5, 莽草, *Illicium religiosum*. [*Jap.* 1141.]

465.—芫 *Yüan*. A plant mentioned in the *Shan hai king*. Kuo P'o says a medicinal plant. The *Rh ya* [258] writes 抏 *yüan*; another name 魚毒 *yü tu* or fish-poison.

The ancient dictionary *Ki tsiu pien* [1st century B.C.] states that the 芫 *yüan* flowers when boiled and thrown into water kill fish. The *Shuo wen* explains *yüan* by "fish-poison."

P., XVII*b*, 42, *yüan hua*. Poisonous plant. A small tree with violet flowers; another sort has yellow flowers. Flowers, leaves, and bark of the root used in medicine. *Ch.* [XXIV, 44] represents under *yüan hua* a daphne. Henry [*l.c.*, 281] thinks it is *Daphne genkwa*, S. & Z.

Sieb. & Zucc. *Flora japon.*, I, 137, tab. 75, and Sieb., *Icon. ined.*, VI, 芫花, *Daphne genkwa*. Violet flowers. Flowers and bark used in medicine. The plant is said to have been introduced into Japan from China.

At Peking the name *yüan hua* is applied to a poisonous thymelaceous plant—the *Wickstrœmia chamædaphne*, Meissn., with yellow flowers. Comp. TATARINOV, *Catal. med. sin.*, 31. It is employed for stupefying fish.

Jap., 753, *Daphne genkwa*, S. & Z., 芫花.
„ 389, *Budleya curviflora*, Hk. & A, 醉魚草.

466.—葶薴 *T'ing ning*, a plant mentioned in the *Shan hai king*, and likewise said to kill fish.

The 焉酸 *yen suan* is another poisonous plant noticed in the *Shan hai king*.

467.—荔 *Li*. A plant mentioned in the *Li ki*. LEGGE translates broom-sedge. I, 304 [*Yue ling*]:—Second month of winter. The broom-sedge rises up vigorously. CHENG HÜAN explains *li* by 馬䪥 *ma hiai* (a fragrant plant). The *Shuo wen* says the *li* is an herbaceous plant which resembles the 蒲 *p'u* (*Typha*) but is smaller. The roots are made into brushes.

P., XV, 57, 蠡實 *li shi*, a name found in the *Pen ts'ao king*. The ancient authors say that the *li* of the *Li ki* refers to this plant. It has many other names, 馬帚 *ma chou* (horse's broom), 馬藺 *ma lin*, etc. The plant has violet flowers, the fruit is a capsule, seeds resemble hemp-seeds. The leaves resemble *Allium* leaves. The root is long, fine (fibrous), of a yellow colour. The people use it for making horse-brushes. The authors refer to this the plant *p'ing* or *ma chou* in the *Rh ya* [36]. *Ch.*, XI, 42, *li shi*. The plant figured there is an *Iris*. At Peking *ma lin* is the common name for *Iris oxypetala*, Bge.

Amœn. exot., 872, 馬藺 *farin*, vulgo *buran*, also *reso kjosa*. Iris hortensis alba, germanica, C.B.P. *So moku*, II. 8, same Chinese name, *Iris ensata*, Thbg.

E., 165, family **馬蘭**, names of *supra*, 36, are syn.

Jap., 1160, *Iris ensata*, Thbg., var. *chinensis*, Max., **馬蘭. 蠡實.**

„ 1162, „ *japonica*, Thbg., **蝴蝶花.**

„ 1163, „ *lævigata*, Fisch., **燕子花.**

„ 1164, „ *lævigata*, var. *Kæmpferi*, Sieb., **玉蟬花.**

„ 1167, „ *sibirica*, L., var. *orientalis*, Thbg., **溪蓀.**

„ 1168, „ *tectorum*, Max., **鳶尾.**

468.—**芄蘭** *Huan lan*, name of a plant and title of an ode in the *Shi king* [103]. LEGGE calls it the sparrow-gourd and thinks it may be a *Tylophora*.

See the *Rh ya* [93], *kuan* or *huan lan*. KUO P'O explains:—A creeping plant, the stalks of which, when broken, exude a white juice. Edible.

LU KI:—*Huan lan* or **蘿摩** *lo mo*. In **幽州** Yu chou the people call it **雀瓢** *tsio p'iao* or sparrow-gourd. The plant creeps on the ground while the stem is weak, but when it meets with a support it climbs.

P., XVIII*b*, 32, *lo mo*. T'AO HUNG-KING [5th century] describes it as a climbing plant, the stalks of which, when broken, exude a white juice. It is much cultivated. The leaves are thick and large, they may be eaten both raw and cooked. LI SHI-CHEN adds:—It has small light violet flowers resembling little bells. The fruit is green, from two to four inches long, pointed at the lower end. Inside it is filled with white, silky hairs (coma of the seeds). The plant described is the *Metaplexis Stauntoni*, Rœm. & Schult. An *Asclepiadea*, common in North China, wild and cultivated. Drawings *Ch.*, XXII, 69, and *Kin huang*, L, 22. In the latter work it is called **羊角菜** *yang kio ts'ai* (ram's horn vegetable), on account of the shape of the fruit.

V. supra, 93. *Jap.*, 1432, *Metaplexis Stauntoni*, Rœm. & Schult., **蘿藦.**

E., 73, family **白花菜**, with bad figure perhaps of *Gynandropsis pentaphylla*, DC.

[*H.*, 364. *P.*, XXVI, 67. *Jap.*, 1054]. The synonym 羊角菜 is mentioned.

E., 77, 20, family **雜蔬**, has a figure of 羊**角菜**, an *Asclepiadea*, probably a *Cynanchum*. [Comp. *supra*, 378].

Other *Asclepiadeæ*. *Jap*, 863, *Endotropis caudata*, Miq., **牛皮消**.

„ 1101, *Hoya carnosa*, R. Br., **毬蘭**.

„ 1398, *Marsdenia tomentosa*, Morr. & D., **牛嬭菜**.

„ 1807, *Pycnostelma chinensis*, Bge., **徐長卿**.

VIII.—*Fruits.*

469.—Li Shi-chen, in the introduction to the chapter on edible fruits, *P.*, XXIX, 1, says that the character 果 *kuo* denotes edible fruits produced on trees, whilst the term 蓏 *lo* is applied to edible fruits of herbaceous plants [especially cucurbitaceous plants. Cf. *supra*, 382]. The same definition we find already in the *Shuo wen*.

Chou li, I, 383 :—Les jardiniers sont préposés aux jardins et potagers appartenant a l'état. Ils plantent les fruits à noyau, des fruits sans noyaux et des fruits rares et précieux. What Biot translates by "fruits à noyau et sans noyau" are *kuo* and *lo* in the text. Cheng Hüan explains *kuo* by 有核 (having a stone) and *lo* by **無核** (without a stone) and gives as examples of the first the jujube and the plum, and of the second 瓜 *kua* and 瓠 *hu* (gourds and bottle-gourds).

Li ki, I, 82 :—When a fruit (果) is given by a ruler and in his presence, if there be a kernel (核) in it, the receiver

should place it in his bosom. 核 *Ho* properly means the stone of a fruit; the kernel is 仁 *jen*. [See also the *Rh ya*, 330].

Another somewhat obscure classification of fruits is given in the *Chou li* [I, 194–195] in the chapter which deals with the productions in different localities :—

Première classe : Montagnes et bois (山林) . . . . Les espèces plantées (植物) sont des espèces à couleur noirâtre (皂). Commentator A. (Cheng Sz'nung) :—Les espèces plantées sont celles qui ont une racine (根生之). La couleur noirâtre indique le châtaignier (栗) et l'arbre à bois dur, appelé *tso* [柞 an oak, *v. infra*, 534] ; maintenant le fruit de cet arbre est appelé *tsao teou* (皂斗) boisseau de noir. Selon le *Yun hoei* cité par Kang hi au caractère *tsao*, l'arbre dans cette phrase est 橡 *siang* (le chêne) [*v. infra*, 534].

Seconde classe : Cours d'eau et lacs (川澤). Les espèces plantées sont des espèces à enveloppe 膏物. [The commentary says the first character stands for 橐, a bag.] Commentator B. (Cheng Hüan) :—Les plantes aquatiques *kien* (芡) et *lien* (蓮) le nénuphar. [Another commentator adds 菱 *ling*.] See regarding these plants, *Euryale*, *Nelumbium*, *Trapa* [*supra*, 395, 396, 397].

Troisième classe : Collines et côtes (丘陵). Les espèces plantées sont des espèces à fruit charnu (蓏物). The commentary says the first character stands for (核 fruit-stone). Commentator B. (Cheng Hüan) :—Des cerisiers (李), des pruniers (梅). Biot is mistaken ; the first is the common plum, the other *Prunus mume* [*v. infra*, 473]. Kia Yung-yen adds the jujube and the apricot.

Quatrième classe : Bords des rivières et plaines basses (墳衍). Les espèces plantées sont des espèces à noyau (莢). [Biot is mistaken ; this character means a pod, a leguminous

fruit. It is also applied to the silicles of cruciferous plants, and to the seed-vessels of the elm. *V. supra*, 354]. Commentator B. (CHENG HÜAN) :—Le *tsi* 薺, shepherds' purse, le *wang ki* 王棘, sorte de jujubier. [See regarding these plants, *supra*, 367 and *infra*, 485]. A later commentator observes judiciously that CHENG HÜAN is mistaken with respect to the *wang ki*, which has not pods but a fruit with a stone.

Cinquième classe : Plaines hautes et terrains marécageux (原隰). Les espèces plantées sont des espèces touffues (叢). Commentator B. :—Roseaux, plantes sauvages [萑葦, rushes and reeds, *v. supra*, 455].

The 五果 *wu kuo* or five [principal] cultivated tree-fruits of the ancient Chinese were, according to LI SHI-CHEN, 李杏桃栗棗 (the plum, the apricot, the peach, the chestnut, the jujube). This classification is attributed to the Emperor SHEN NUNG.

470.—桃 *T'ao* is, as is well known, the peach which is largely produced in Northern China. It is frequently mentioned in classical and other ancient writings.

Shi king, 12 :—The peach-tree is elegant and young, brilliant are its flowers, abundant will be its fruit. 165 :—There are peach-trees in the garden, the fruit may be used as food. [Also, 33, 515.]

Li ki, I, 460, 461 ["Diet of the Ancient Chinese"] :—Preserved peaches. [See *infra*, 484, note]. I, 257 [*Yüe ling*] :—Second month of spring. The peach-tree begins to blossom.

Chou li, I, 108 :—Les paniers de l'offrande des aliments sont remplis avec des jujubes (棗), des châtaignes (栗), des pêches (桃), des abricots secs (乾薧), des petites châtaignes (榛). II, 248 :—Le pêcher employé dans la cérémonie du serment [*v. supra*, 456].

Hia Calendar, 21, 78 :—In the *Shan hai king* the *t'ao* or peach is frequently mentioned. *Bamboo Annals* [166], king King, B.C. 525. In winter, in the 12th month, peach-trees and almond-trees in flower. *Rh ya*, 267, 268.

P., XXIX, 16, *t'ao*. *Ch.*, XXXII, 13. Good drawing of the peach, flowers and fruit. *Kiu huang*, LVIII, 18.

Amœn. exot., 798, 桃 *too*, vulgo *momu*. Malus persica. *Phon zo*, LXII, 1-13, various varieties of the peach.

V. supra, 267. *S.*, XI, 10. *C.*, 1257–1259. *A.*, XV, 149. *Jap.*, 1781.

471.—杏 *Hing* (the apricot) is without any doubt a native of China. The mountains of North China abound in wild apricot trees with edible fruits. There can also be no doubt that it was cultivated in China from remote antiquity. It is therefore surprising that the apricot is not mentioned in the *Shi king*. The character *hing* is also not found in the *Rh ya*. It appears, however, in the *Hia Calendar* [21] :—First month. Plum, apricot and peach blossom. [54] :—Fourth month. Apricots are seen in the gardens.

Li ki, I, 461 :—Fruits eaten by the ancient Chinese [see quotation *infra*, 484, note].

Chou li, II, 194 :—Fire of the wood [See quotation in 528, note.]

Bamboo Annals, 166. [See the quotation under 470]. LEGGE translates *hing* erroneously by almonds. *Shan hai king*, the *hing* frequently mentioned.

P., XXIX, 3, *hing*. *Ch.*, XXXII, 14, good drawing, flowers and fruit. *Kiu huang*, LVIII, 16.

Amœn. exot., 798, 杏 *kjoo*, vulgo *kara momu*, *i.e.*, momu ex Cataja. It. *ansu*. Malus Armeniaca, fructu majori. *Phon zo*, LXI, 5, 杏, *Prunus armeniaca*.

E., 230, family 杏, with good figure.
„ XI, 8. *A.*, XV, 149. *Jap.*, 1770.

472.—李 *Li* is the Chinese name for the common edible plum, *Prunus domestica*, L. The fruits cultivated at Peking under this name, a dark purple and a yellow variety, are the same as we see in Europe. Other varieties are grown in the south. [Comp. *Index Florae sin.*, 218.]

Shi king, 515 :—When one throws me a peach, I return him a plum. [*See also* 35, 123, 272.]

Li ki, I, 461 :—Fruits eaten by the ancient Chinese. [See quotation under 484 note].

Mencius, 161 :—A plum half-eaten by worms. *Shan hai king* frequently. *Rh ya*, 269-271, 330, 331.

P., XXIX, 1, *Li.* Drawings *Ch.*, XXXII, 33, *Kiu huang*, LVIII, 6. In Japan, where *Prunus domestica*, according to SIEB. [*Syn. plant. œcon. jap.*, 361], has been introduced from China, the same Chinese name is applied to it. *Phon zo*, LXI, 2-4, 李, various varieties of *Pr. domestica.*

V. supra, 269. *S.*, XI, 12. *Sm.*, 174. *Pr.*, 184.

473.—梅 *Mei* nowadays in China is a general term applied to several species of *Prunus*, some of them with edible fruits, others not eatable. But what is called *mei* par excellence seems to be *Prunus mume*, Sieb. At least the 梅花 *mei hua* (*mei* flower) cultivated at Peking for its beautiful double flowers, and known also under the name of 杏葉梅 *hing ye mei* (*mei* with apricot leaves), is *Pr. mume*, to which species in Japan also the Chinese name 梅 is applied.

Amœn. exot., 梅 *bai*, vulgo *ume* et *ume bos.* Prunus sylvestris spinosa, fructu magno. Fructus fœcibus Japonensis cerevisiæ (*sacki*) conditi, in Indiam Sinamque transvehuntur. SIEBOLD & ZUCC., *Flora japon.*, I, 29, tab. 11 ; *Phon zo*, LXI, 10-13. *Pr. mume* is cultivated in Japan as an ornamental shrub and also for its fruit, which is salted green or employed in this unripe state for preparing a cooling acid drink. The exceedingly acid dried fruit of a *Prunus*, said to be brought from the south, is sold at Peking

under the name of *suan mei* (sour plum) and used for preparing a refreshing beverage. I suspect this is *Pr. mume*, although this species does not appear in the *Index Florae sinensis*. I cannot say what *Prunus* the figure under *mei* [*Ch.*, XXXII, 12] is intended for, but the *mei* described in *P.*, XXIX, 11, is, I believe *Pr. mume*. Li Shi-chen says the leaves and fruit of the *mei* resemble those of the apricot; the fruit is acid; it is salted or dried or smoke-dried. In the latter state it is called *wu mei* (black plum).

The 榆葉梅 *yü ye mei* (*mei* with elm-leaves) a beautiful ornamental shrub frequently cultivated at Peking, is the *Prunus triloba*, Lindl. Small fruits, not eatable.

I suspect the *mei* of the Classics is *Prunus mume*.

Li ki, I, 460 ["Diet of the Ancient Chinese"]:—Water syrup of prunes (醷). The commentators explain the character by 梅漿 (*mei* syrup). *Ibidem*:—For preserved peaches and plums (*mei*) they placed egg-like suet. I, 461:—*Mei* mentioned among the fruits eaten by the ancient Chinese. [See the quotation *infra*, 484, note.] Legge translates here *mei* by ballaces.

In the *Chou li* [I, 105] we have the term 乾藫 *kan lao* [see the quotation in 470]. Cheng Hüan explains it by dried *mei*.

Hia Calendar, 21:—First month. The plum (*mei*) blossoms. 73:—Fifth month. Cooked are the plums (*mei*).

The *mei* is frequently mentioned in the *Shan hai king*. Kuo P'o says it resembles the apricot, but is acid. [Compare also the *Rh ya*, 227, 237, 244.]

Shi king, 30:—Dropping are the fruits from the plum-tree (*mei*). [Also 197, 210, 223, 358.]

Lu ki:—The *mei* resembles the apricot, especially in the leaves. The fruit is dried and prepared as soup, or pickled. It is of a pleasant taste. [Compare also *infra*, 512.]

Shu king, 260 :—Be to me as the salt in the prunes (*mei*) in making agreeable soup.

Ch'un ts'in [referring to B.C. 626] :—In the 12th month there fell hoar frost without killing the grass. Plum-trees (*mei*) bore their fruit.

V. supra, 227, 244. *Jap.*, 1779.

474.—鬱 *Yü*. This character in the *Shi king* [200] has the meaning "thickly wooded," but in the ode "Life in Pin" [231] it denotes a fruit which LEGGE calls the sparrow-plum. In the sixth month they eat the sparrow-plum (*yü*) and [wild] grapes.

MAO says it is a kind of 棣 *ti* [*see* 476]. K'UNG YING-TA :—A kind of 唐棣 *t'ang ti* [*see* 475].

LU KI :—The *yü* is a tree from 5 to 6 feet high. Its fruit is of the size of a plum (*li*), of a red colour and sweet taste.

P., XXXVI, 33, 郁李 *yü li* or 爵李 *tsio li*, ancient names found in the *Pen ts'ao king*. In the *Pie lu* it is called 鬱李 *yü li*. According to others, it is the 雀李 *tsio li* or sparrow-plum. LI SHI-CHEN says that the flowers of the *yü li* are of a rose colour, the fruit is like a small plum. He considers the *yü li* to be the same as 常棣 or 棣 [*Rh ya.* 306], but writes the first name 棠棣 *t'ang ti*.[22] It is said to be the same as the 栯木 *yü mu* in the *Shan hai king*.

Under the name of *yü li* they cultivate at Peking *Prunus japonica*, Thbg. It flowers in January. Small, white buttons of double flowers, appearing before the leaves. It is figured under *yü li* in *Ch.* [XXXIII, 51]. A rude drawing of it is also found in the *Kin huang* [LVIII, 9]. The bitter kernels of the fruit are sold in the apothecaries' shops.

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22 This is not to be confounded with 棣棠 *ti t'ang*, which in China as well as in Japan is the name for *Kerria japonica*, DC. *Ch.*, XXVI, 12. *Amæn. exot.*, 844, *teito*. SIEB. & ZUCC., *Flora japon.*, I, 183, tab. 98.

Phon zo, LXXXVIII, 1, 郁李, *Prunus japonica*. [*See also* HOFFM. & SCHULTES, 461, and SIEB. & ZUCC., *Flora japon.*, I, 172, tab. 90.] The small red acid fruit is dried in Japan and eaten. The kernels used in medicine.

Jap., 1776. Comp. *supra*, 306, *infra*, 476, 477.

475.—唐棣 *T'ang ti*. LEGGE terms this likewise the sparrow-plum, also aspen plum.

Shi king, 35 :—How great is that luxuriance, those flowers of the sparrow-plum (*t'ang ti*) . . . . . the flowers like those of the peach-tree and the plum (*li*). 201 :—On the mountains are the bushy sparrow-plums [the text has only 棣 *ti*. MAO explains that *t'ang ti* is meant].

CONF. *Analects*, 90 :—How the flowers of the aspen plum (*t'ang ti*) flutter and turn.

Very different views are held by the Chinese commentators about this tree ; some say that the *t'ang ti* is a plum, others make it to be an aspen.

The *Rh ya* [305] has 唐棣 *t'ang ti*, also called 栘 *i*. KUO P'O explains that it is a tree resembling the *pai yang* or white poplar, and is also called *fu i*. The *Shuo wen* writes the above name 棠棣 *t'ang ti* and identifies it with *i*.

MAO explains the *t'ang ti* in the *Shi king* by *i*, as in the *Rh ya*. *P.* [XXXV*b*, 29] refers the *t'ang ti* of the *Shi* to the tree 扶栘 *fu i*, also called 栘楊 *i yang* (*i* poplar). LI SHI-CHEN [after the *Ku kin chu*, 4th century] describes it as a kind of poplar or aspen with quivering leaves.

Ch. XXXV, 4 gives *fu i* as a synonym for 白楊 *pai yang*, the white poplar. The drawing in the *Phon zo* [LXXXIV, 24] under 扶栘 seems to represent a *Populus*, but according to SIEBOLD [*Flora Japon*, I, 87, tab. 42, and *icones. ined.* III] this Chinese name is in Japan applied to *Aronia asiatica*, a small tree of the order *Pomaceæ*, with white flowers in racemes. It is said to have been introduced into Japan from China.

Other Chinese commentators take the *t'ang ti* of the *Shi* to be a kind of plum. Lu Ki says it is the same as the 奥李 *yü li* (grape plum), also called 雀梅 *tsio mei* (sparrow-plum), and 車下李 *ch'e hia li* (plum under the cart). It grows in the mountains, its flowers are both white and red. The fruit ripens in the sixth month, it is as large as a plum and edible.

Legge agrees with this view that the *t'ang ti* was a kind of plum, for evidently from the text of the *Shi* it may be concluded that it is akin to the peach and the plum.

Aronia asiatica = *Amelanchier Canadensis*, Torr. et Gray, var. *japonica*. *Jap.*, 132, with Chinese name 扶移. It occurs in Chekiang Province on the Tien-tai mountain, a beautiful tree when in flower. Fruit not seen.

476.—常棣 *Ch'ang ti*. Legge calls it the cherry.

Shi king, 250 :—The flowers of the cherry tree (*chang ti*) are they not gorgeously displayed? 260 :—Flowers of the cherry tree. In this passage the Chinese text has only the first character of the name 常之華 (*chang* flowers).

The *Rh ya* [306] has 常棣 or 棣. Kuo P'o explains that the fruit resembles the *ying t'ao* (cherry).

Lu Ki says :—According to the *Shuo wen* the *ch'ang ti* or *ti* is the same the 白棣 *pai ti* or white *ti*. The fruit resembles the plum (*li*) but is smaller, of the size of a *ying t'ao* (cherry) and of a white colour. It is now cultivated in the government gardens (官園). There is also the 赤棣 *ch'i ti* (red *ti*). It resembles the white *ti*. The leaves are like those of the *ts'ê' yü* or spiny elm (*Hemiptelea*) but rather orbicular. The fruit is red like that of the *yü li* [*see* 474] but smaller; it ripens in the fifth month. The tree is very common in the north-western provinces.

Li Shi-chen makes this tree to be the same as the *yü li*, *Prunus japonica*, but writes 棠棣 *t'ang ti* instead of 常棣.

477.—含桃 *Han t'ao*, an ancient name for the cherry.

Li ki, I, 273 [*Yüe ling*] :—Second month of summer. The Son of Heaven eats millet along with pullets and cherries (*han t'ao*). The commentary explains *han t'ao* by 櫻桃 *ying t'ao*, which is now the common Chinese name for cherries. [*V. supra, Rh ya*, 266].

According to the *Index Floræ sinensis* there are 9 species of *Prunus* belonging to the section *Cerasus* or cherry, now known in China, including the already mentioned *Pr. japonica*.

The *Pr. pseudocerasus*, Lindl., or Bastard Cherry, was introduced into England, it seems, from Canton, by Dr. Reeves, in 1822. He calls it *ying to*. [See *Transact. Hort. Soc. London*, VI, 1826, p. 90.] This differs from our common cherry, in having its flowers growing in racemes, not fascicles, and in their stalks being hairy. The Double Chinese Cherry, *Pr. serratula*, Lindl., introduced likewise by Reeves under the name of *yung to* (evidently *ying t'ao*) proved afterwards to be identical with *Pr. pseudocerasus*.

In 1879, I sent herbarium specimens with flowers and fruits of the cherry cultivated at Peking under the name of *ying t'ao* to the late J. Decaisne, Paris. He declared them to be *Pr. pseudocerasus*. But Mr. Maximowicz, of St. Petersburg, to whom I had forwarded specimens from the same tree, found that they belonged to a distinct species, the *Pr. pauciflora*, Bge., which, however, seems closely allied to the former. This cherry in its appearance, colour and taste resembles much our common sour cherry.

P., XXX, 41, *ying t'ao*. Good description. *Kiu huang*, LVIII, 1; *Ch.*, XXXII, 17.

In May another cherry is offered for sale at Peking under the name of *shan ying t'ao* or mountain cherry. The fruit, produced on a very short stalk, is of a pale red, covered with

soft hairs ; it has a peculiar flavour. This is the *Prunus tomentosa*, Thbg. It is found wild and cultivated in the Peking mountains, and is well known also in Japan.

P., XXX, 43, *shan ying t'ao.* The downy appearance of the fruit noticed. *Ch.*, XXXII, 18, *shan ying t'ao.* Bad drawing not characteristic.

Amæn. exot., 799 :—櫻 *Je, jo, o,* vulgo *sakira.* Cerasus flore simplici, fructu austero. This is *Pr. pseudocerasus,* according to MAXIMOWICZ. [*See also* HOFFM. & SCHULTES, 466.]

The Chinese names 櫻桃 and 梅桃 seem to be more generally applied in Japan to *Pr. tomentosa*, while 山櫻桃 (mountain cherry) denotes *Pr. pseudocerasus* and also *Pr. incisa.* [Comp. SIEB. & ZUCC., *Flora japon.*, I, 51, tab. 22 ; HOFFM. & SCHULTES, 468 ; *Phon zo*, LXVI, 5-8.]

E., 279, family 櫻桃, with figure and all the names of *supra*, 266.

S., XI, 22. *Sm.*, 58. *Jap.*, 1782.

Jap., 1786, *Prunus tomentosa*, Thbg., 梅桃.

Prunus communis, Huds., is mentioned *Jap.*, 1773, as 扁桃.

478.—木瓜 *Mu kua*, the tree-melon of the Classics, is still the common Chinese name for the Quince, *Cydonia sinensis*, Thouin. This fruit is oblong and of enormous size.

Chou li, II, 581 :—Ouvriers des arcs. Le coignassier (木瓜). The wood of the quince tree used for making bows. [*See* quotation in 501, note.]

Shi king, 107 :—*Mu kua*, title of an ode. LEGGE takes the *mu kua* to be the *l'apaya*, but he is mistaken ; the *mu kua* of the Classics is undoubtedly the quince.[23]

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[23] *Carica Papaya*, L., the melon-tree, is a native of tropical America. It is now cultivated everywhere in tropical Asia, and known also in Southern China. Its large melon-shaped fruit is called 木瓜 *mu kua* at Canton. [See *W.D.*, 466]. The *Ch.*, XXXI, 54, gives a good drawing of this tree under the name of 番瓜 *fan kua* (foreign melon).

See the *Rh ya*, 231:—*Mou* or *mu kua*. *P.*, XXX, 6, *mu kua*. *Kiu huang*, LVIII, 7. *Ch.*, XXXII, 23.

Amœn. exot., 844:—木瓜 Arbuscula Acaciæ germanicæ facie, flore pentapetalo rubro pomi nostratis, calyce quinque labiis rotundis in herbeo rubentibus, staminibusque incarnatis plurimis decorato in fructum carnosum excrescente. This is, according to MAXIMOWICZ, *Chænomeles japonica*, Lindl. (*Cydonia japonica*, Pers.). *Phon zo*, LXIII, 7, 木瓜, *Chænom. japon.*

Jap., 478, *Pyrus japonica*, Thbg., var. *genuina*, Max., 木瓜.

479.—木桃 *Mu t'ao* (wood-peach). This name occurs in the *Shi king* [108]. LEGGE translates:—There was presented to me a peach (*mu t'ao*). But a peach is not meant here.

In *P.* [XXX, 10] *mu t'ao* is given as a synonym for 楂子 *cha tsz'*, name of a fruit which is mentioned in the *Rh ya* [331] and regarding which the *Shuo wen* says that it resembles a pear, but is of a sour taste. LI SHI-CHEN compares it to the *mu kua* or quince, but it is smaller, of a yellowish colour, sour and harsh.

The drawing in the *Phon zo* [LXIII, 10] under 虘子 refers perhaps to *Cydonia japonica*.

In the *Li ki* [I, 461], where the fruits eaten by the ancient Chinese are enumerated [*c. infra*, 484, note], there appears the name 楂 *cha* [haws, according to LEGGE] together with 梨 *li* (the pear), and farther on we read [p. 462] *cha* (柤) and pears (梨) had the insects drilled out of them. The 柤 is repeatedly mentioned in the *Shan hai king*, and KUO P'O explains that it is a fruit resembling the pear, but sour and harsh. According to the ancient dictionary *Kuang yün* [T'ang dynasty], the character 柤 is identical with 楂, and 楂 is also the same.

It cannot be decided whether the *cha* was a quince or a hawthorn (*Cratægus*), or perhaps another *Pomacea*. The

山楂 *shan cha* or mountain *cha* is *Crataegus*. [*V. supra, Rh ya*, 244.]

480.—Besides the wood-peach, the *Shi king* mentions also a wood-plum 木李 *mu li*. LEGGE translates [108]:—There was presented to me a plum. The Chinese text has *mu li*.

In *P.* [XXX, 10] the *mu li* or wood-plum of the *Shi* is identified with the 楳楂 *ming cha*, also called 木梨 *mu li*, wood-pear. LI SHI-CHEN states that this fruit is a kind of *mu kua* or quince, but larger than the common *mu kua*; it is of a yellow colour. The *ming cha* is not figured in *Ch.*

Phon zo, LXIII, 11, 12. 楳楂. The drawing seems to represent *Cydonia vulgaris*, with a large fruit. *Ibidem* [13. 14] a figure of *Cydonia vulgaris* is given with the Chinese name 榲桲, in accordance with KÆMPFER.[24]

Jap., 1823, *Pyrus chinensis*, Poir., 榠樝.

„ 1828, „ *japonica*, Thbg., var. *pygmæa*, Max., 楂子.

„ 1825, „ *Cydonia*, L., 榲桲.

„ 1822, *Pyrus baccata*, L., var. *mandshurica*, Max., 棠梨.

[Comp. *Sm.*, 107.]

481.—梨 *Li* is the common name for the Pear. The pears cultivated in Northern China for their fruits are varieties of our *Pyrus communis*, *P. sinensis*, Lindl., (*P. ussuriensis*) and probably some other species. The best is the 白梨 *pai li* or white pear. The fruit is small, globular-shaped,

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[24] *Amæn. exot.*, 800. 榲桲 *umbatz*. vulgo *marmeer*. Malus Cydonia fructu oblongo, magno, uteunque pyriformi. A Lusitanis cum nomine regioni illata est. This is, according to MAXIMOWICZ, *Cydonia vulgaris*.

Ch. [XXX, 2] under the above Chinese name (*wen p'o*) represents a *Cydonia* with a small fruit. At Peking the name *wen p'o* is applied to the small fruit of the wild-growing *Crataegus pinnatifida*, Bge., (the cultivated form with large fruit is *shan li hung*, *v. supra*, 244). The account given in *P.* [XXX, 11] of the *wen p'o* seems to refer to *Crataegus* rather than to a quince,

yellowish white, has the appearance of an apple. It is very savoury. Large pears of the ordinary shape are produced in Shantung and Manchuria, but they are much inferior to our European pears.

Li ki, I, 461, 462 :—The pear mentioned among the fruits eaten by the ancient Chinese [see *infra*, 484, note]. The name of the pear occurs in the *Shan hai king*, and in the *Rh ya* [301, 331].

P., XXX, 1, *li*. *Kiu huang*, LVIII, 4. *Ch.*, XXXII, 31.

Amœn. exot., 800 :—梨 *ri*, vulgo *nas*. Pyrus sativa, fructu magno duro ; cujus in hac regione saltem triplex datur varietas.

Phon zo, LXIII, 2, 3. Several varieties of the pear figured. SIEBOLD [*Syn. plant. œcon. jap.*, 349] states that the pear is not indigenous to Japan, but has been introduced from China.

482.—甘棠 *Kan t'ang* (sweet *t'ang*). LEGGE calls it the sweet pear tree. *Shi king*, 26 :—The umbrageous sweet pear tree.

杜 *Tu* is the name of another sort of pear tree mentioned in the *Shi*. LEGGE terms it the russet pear tree.

Shi king, 181, 185 :—The solitary russet pear tree. Its leaves are luxuriant. 265 :—Solitary stands the russet pear tree with its fruit so bright.

In the *Shan hai king* we meet with the names 棠 *t'ang* and 沙棠 *sha t'ang*.

In the *Rh ya* [242] we have 杜 *tu* same as 甘棠 *kan t'ang*, and [254] it is stated that *tu* is the red and *t'ang* the white sort.

LU KI :—The *kan t'ang* is also called 杜梨 *tu li* or 赤棠 *chi t'ang* (red *t'ang*). There are two sorts of *t'ang*, the white and the red. The white is a good fruit and is also called *kan t'ang* or sweet *t'ang*. It is of a pleasant sourish taste and

mucilaginous, whilst the fruit of the red *t'ang* is harsh and acid. There is a proverb saying "harsh as a *tu*." But the wood of the red *t'ang* is tough and fit for making bows.

P., XXX, 5, *t'ang li* or *kan li*. Li Shi-chen says that the *t'ang li* is a white pear, found everywhere in the mountains. *Ch.*, XXXI, 40. The drawing represents a tree; evidently a *Pyrus* is intended, with a small globular fruit. *Kiu huang*, LVI, 14, rude drawing.

It seems that the above-mentioned ancient names were applied to various wild-growing and cultivated species of *Pyrus* with small fruits, pears and crab apples, of which we know a considerable number in China and Japan.

There is in the Peking mountains a wild pear, the *Pyrus sinensis*, Lindl., (*P. ussuriensis*, Maxim.), which bears a globular fruit, about one inch in diameter, of a greenish brown colour, covered with little warts. Late in autumn, after frost, this fruit is offered for sale at Peking. It is known by the name 棠杜梨 *t'ang tu li*; its taste is not unpleasant.

The name 杜梨 *tu li* at Peking is applied to the *Pyrus betulaefolia*, Bge., a species met with wild in the mountains and much cultivated in gardens for its beautiful flowers, which in April appear on the tree in great profusion, and for its little brown fruit of the size of a small cherry, which is eaten by the Chinese. Taste not unpleasant.

The *Pyrus baccata*, L., with a red edible fruit of the size of a pea, is common in the Peking mountains. It is called there 山荆子 *shan king tsz'*. But this is merely a local name. Its book name is, it seems, 林檎 *lin kin*, which, as has been stated above, under 301, is not a classical appellation.

According to Henry [*l.c.*, 446] in Hupei the name *tang li* is applied to *Pyrus betulaefolia*.

In the *Phon zo* [LXIII, 5] the 赤棠 or red *t'ang* is *Pyrus toringo*, Sieb., (hitherto not found in China). *Ibidem*, 5, under 棠梨, a *Pyrus* with a pisiform fruit is figured.

E., 233, family 棠梨, with figure of a pear tree with small fruit. **S., VIII, 37.**

Jap., 1822, *Pyrus baccata*, L., var. *mandschurica*, Max., 棠梨.

[Compare *Sm.*, 107].

„ 1829, „ *Malus*, L., var. *tomentosa*, Koch, 林檎.

„ 1830, „ *sambucifolia*, Cham. et Schlecht., 花楸樹.

„ 1831, „ *spectabilis*, Ait., 海棠.

483.—Finally the *Shi king* mentions a sort of pear under the name of 樣 *sui*. LEGGE calls it simply the wild pear tree.

Shi king, 201 :—In the low, wet grounds are the high, wild pear trees.

See the *Rh ya* [265], *sui* or 羅. KUO P'O says that the fruit resembles a pear. The *Shuo wen* writes 椋.

LU KI :—The *sui* is also called 赤羅 *ch'i lo* or 山梨 *shan li*. The people now call it 楊樣 *yang sui* or 鹿梨 *lu li* (deer's pear), also 鼠梨 *shu li* (rat's pear). The fruit looks like a small pear and is sweet. This tree grows in 齊 Ts'i in the prefecture of 廣饒 (now Lo-an hien in Shantung), in 魯 Lu (South-western Shantung), in 河內 Ho nei (Southern Shansi) and in the northern mountains ; the people cultivate it also. The fruit has a delicate flavour not unlike that of the pear.

P., XXX, 4, 鹿梨 *lu li*. The above names given as synonyms. LI SHI-CHEN says that it is a common tree in the mountains, yielding a beautiful veined wood.

SIEBOLD, *Icon. ined.*, III, 鹿梨. A *Pyrus* with a small red fruit. *See also* the drawing under the same Chinese name in the *Phon zo* [LXIII, 3]. According to GEERTS [*Japan Woods*] this Chinese name in Japan is applied to *Sorbus aucuparia*, L. But the account given by LU KI regarding the *sui* or *lu li* does not permit this identification.

Lu li is a synonym of 梨 in *E.*, 231, family 梨.

484.—棗 *Tsao*. This is the classical and common name for the Chinese jujube, *Zizyphus vulgaris*, Lam., cultivated in China from time immemorial it seems. It has produced

many varieties. Europeans in China erroneously call this fruit the date, as also does LEGGE. The Japanese jujubes are likewise furnished by this species, which is also much cultivated for its fruit in the countries situated on the Mediterranean Sea.

Shi king, 231 ["Life in Pin"]:—In the eighth month they knock down the dates (*tsao*).

Hia Calendar, 93:—Eighth month. Cut open are the jujubes (剝棗).

Li ki, I, 119:—Jujube dates (*tsao*) used by women for presents of introduction. [I, 451, 461]:—Fruits eaten by the ancient Chinese. [25]

Chou li, I, 108:—Fruits presented to the Son of Heaven. [*V. supra*, 470]. II, 194:—Fire from the jujube wood. [*See* quotation in 528, note.] *Rh ya*, 272-282:—Names of various sorts of jujubes. [*See also* 331.] The *tsao* is frequently mentioned in the *Shan hai king*.

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[25] The fruits enumerated there are, according to LEGGE's translation:—

1.—Small chestnuts [栭 *v. infra*, 495].
2.—Water-caltrops [菱 *v. supra*, 397].
3.—*Hovenia dulcis* [椇 *v. infra*, 489].
4.—*Zizyphus* [棗].
5.—Chestnuts [栗 *v. infra*, 494].
6.—Hazel-nuts [榛 *v. infra*, 496].
7.—Persimmons [柿 *v. infra* 491].
8.—Cucumbers [瓜. I should rather think melons are meant. *V. supra*, 382].
9.—Peaches [桃 *v. supra*, 470].
10.—Plums [李 *v. supra*, 472].
11.—Ballaces [梅 *v. supra*, 473].
12.—Almonds [杏 apricots, *v. supra*, 471].
13.—Haws [楂 *v. supra*, 479].
14.—Pears [梨 *v. supra*, 481].

P., XXIX, 31, *tsao*. *Ch.*, XXXII, 1. *Kiu huang*, LVIII, 17.

Amœn. exot., 789, 棗 *soo*, vulgo *naatsme*. Paliurus, Prosp. Alp. fructu pruni hortensis magnitudine, per maturitatem croceo, carne austera, saccharo conditi solito, ossiculo olivæ utrinque acuto.

Phon zo, LXII, 19–21. Several varieties of *Zizyphus vulgaris*. [*See also* SIEBOLD, *Syn. plant. œcon. jap.*, 262.]

Mencius, 373 :—Sheep dates mentioned, 羊棗 *yang tsao*. So called from the resemblance of the fruit to sheep's dirt. [Compare the *Rh ya*, 277.]

292.—MENCIUS said :—Here is a plantation-keeper who neglects his *wu* [*Sterculia*, v. *infra*, 516] and his *kia* [*v.* 292, 508] and cultivates his sour wild dates ; he is a poor plantation-keeper.

What LEGGE translates by "sour wild dates" is 棘棘 *rh ki* in the text. The first character is explained in the *Rh ya* [275] by *suan tsao* (sour jujube) ; regarding *ki*, see the next.

The 酸棗 *suan tsao* at Peking is the wild, spinous form of *Zizyphus vulgaris*, which in its cultivated state is an unarmed tree with a large oblong spheroidal fruit, containing an oblong pointed stone. The wild form is a very thorny shrub which produces small globular, sour, edible fruits, with a globular stone. It is very like the *Z. lotus* of Northern Africa. It is very common in the Peking plain and in the mountains. The natives use it for fences. BUNGE says regarding this shrub "spinosissima et molestissima."

V. supra, 272. *Jap.*, 2402.

H., 498, *Suan tsao*, *Diospyros Lotus*, L., which is *Jap.*, 810, 君遷子. *H.*, 426, gives still another (local) Chinese name for this tree.

485.—棘 *Ki.* This character, coupled in MENCIUS with the name of the thorny jujube [*see the preceding*], has, as LEGGE states, properly the meaning "thorns." But in the *Chou li* and in the *Shi king*, where it frequently occurs, it denotes, according to the ancient commentators, a jujube tree. MAO explains it by *tsao* (jujube); the *Shuo wen* says the *ki* is a small jujube which grows in a bushy manner. It would seem that the aforesaid spiny variety of the jujube is meant. The *Ku kin chu* [4th century] states that the fruit of the *ki* is called 棗 *tsao.*

Shi king, 50:—The genial wind from the south blows on the heart of that jujube tree (*ki*). 166:—Of the jujube tree (*ki*) in the garden the fruits may be used as food. 183:—The wild geese settle on the bushy jujube tree (*ki*). 186:—The dolichos grows covering the jujube tree (*ki*). 198:—Yellow birds on jujube trees. 210:—At the gate there are jujube trees. 223, 276, 394:—Jujube trees. 353:—Spoons of thornwood 棘匕.

The *ki* is frequently mentioned in the *Shan hai king.*

Tso chuan, 463:—[B.C. 558.] WOO LI, clothed with rushes, forced his way through briars and thorns, 荊棘. The first character denotes *Vitex* [*v. infra*, 521].

We read in the *Chou li* [II, 347, 348] that in the outer court of audience there were planted nine 棘 *ki* trees, and under them the different ministers of the court had their places. [*See quotation in* 546.]

Li ki, I, 236:—The Grand Minister of Crime heard the report of the judgment given in the outer court under the *Zizyphus* tree 棘木下. This phrase indicates that a tree is meant, not a shrub. II, 400:—The game of pitch-pot, played anciently, a kind of archery, with darts instead of arrows and the hand instead of a bow. It is there said:—The arrows are made of mulberry wood [*see* 501] or from the *Zizyphus* (*ki*), without the bark being removed.

The 詩詁, quoted in *K.D.*, says regarding the 棘:—It resembles the *tsao* (jujube), but is very thorny. Its wood is hard and of a red colour. As a shrub it forms thickets, and the people use it for fences. After many years the shrub loses its thorns, and then may attain the height of a *tsao* tree. There is a variety of the *ki*, the wood of which is white. This is called 白棘 *pai ki*. Another variety, which produces sour fruits, is called 楩棘 *rh ki* or *suan tsao* [*v. supra*, 484].

From the above account we may conclude that the *ki* of the Classics was a jujube.

P., XXXVI, 24, *suan tsao* or *ki*; *ibidem*, 26, 白棘 *pai ki*. *Ch.*, XXXIII, 28. *Kin huang*, LV, 2, rude drawings.

Phon zo, LXXXVII, 13, 酸棗, and 14, 白棘. Drawings not characteristic.

486.—橘 *Kü* is one of the Chinese names applied to oranges. *W.D.* [457] says:—It comes nearer the generic term for oranges than any other word.

Shu king, 108 [Tribute of Yu]:—Province of Yang chou (Chekiang, Anhui, Kiangsi). Small oranges (*kü*) and pumeloes [*yu*, see the next] produced there. K'UNG AN-KUO explains:—The small sort is *kü*, the large is *yu*.

Chou li, II, 460:—See the quotation *infra*, 488. II, 581:—Ouvriers des arcs. L'oranger à petites oranges (*kü*) employé pour faire le corps de l'arc [*see* the quotation in 501, note].

The *kü* is repeatedly mentioned in the *Shan hai king*.

The *Shuo wen* says the *kü* is a fruit of Kiangnan (Kiangsi) furnished by an evergreen tree.

WILLIAMS says that 橘子 *kü tsz'* is a large bitterish orange or bigarade common in the north. I have seen this; it is cultivated at Peking in pots, and is the bitter orange. But the fruit brought to Peking from the southern provinces

under the name of *kü* resembles much the common sweet orange of Southern Europe. [Compare *P.*, XXX, 25, under *kü*, and *Ch.*, XXXII, 5.]

The Chinese have also other peculiar characters to designate various sorts of oranges. The 橙 *ch'eng*, likewise brought to Peking from the South, especially from Fuchou in Fukien, is an excellent orange, generally of large size, with a thin rind adhering closely to the pulp. The lobes of the pulp (carpels) do not separate. Europeans call this the coolie-orange, while the name of mandarin-orange or loose-jacket is applied to the smaller, sweet orange. Its skin when ripe is of a cinnabar red colour and adheres to the pulp by a few loose fibres. The lobes separate easily. At Peking it is called **紅橘** *hung kü* or **火橘** *huo kü* (red or fire orange), but its book name is 柑 *kan*, a character derived from 甘 *kan*, sweet. *P.* says it is very sweet and is produced especially in the Southern Provinces. This is the *Citrus nobilis* of Loureiro. Loureiro [*Flora cochin.*, 569] is mistaken, it seems, with respect to the Chinese names of the oranges, for he states that *C. nobilis* in Chinese is *tsem can*, and *C. aurantium*, *can xu*.

See regarding *ch'eng* and *kan*, *P.*, XXX, 34 and 32. *Ch.*, XXXI, 8, 7.

Amæn. exot., 801:—橘 *kitz*, vulgo *tatz banna*. Malus Limonia, fructu rotundo parvo, *mican* dicto, medulla vinosi saporis. Siebold [*Syn. plant. œcon. jap.*, 309] refers the Japanese names *tatsibana* and *mican* to *Citrus nobilis*.

Amæn. exot., 800:—柑 *kan*, vulgo *kummi fo*. Malus Aurantia, folio majusculo, fructu mediocri *to mican* dicto.

Compare also the drawings of various sorts of oranges under the above Chinese names in the *P'hon zo* [LXV, 1-13].

E., 226, family 柑, with good figure. *Jap.*, 615.

E., 227–229, family 橘, with figure of a *Citrus* and 12 names.

E., 230, family 橙, with good figure [*S.*, XI, 31]. This looks, however, like *C. nobilis*, and the figure to 226 like *C. aurantium*, agreeing with LOUREIRO, not with the present usage. To add to the confusion, *Jap.*, 608, *Citr. aurant.* is 柚.

E., 230, family 柚, with figure of a *Citrus*, but fruit too small for *pumelo*.

487.—柚 *Yu*. This is mentioned in the *Shu king* together with the preceding *kü*, or orange, and the commentary says that this is the larger sort. *Yu* even nowadays is a name applied in China to the Pumelo, *Citrus decumana*, L. This enormous fruit is now largely produced in Southern China. Amoy is famed for its pumeloes.

Rh ya, 236, *yu*; another name is *t'iao*.

P., XXX, 35, *yu*. Synonyms 壺柑 *hu kan* (jug orange), 朱欒 *chu luan*. LI SHI-CHEN says the fruit is as large as a gourd. *Ch.*, XXXII, 6, *yu*; pumelo figured. LOUREIRO, *Flora cochin.*, 571, *C. decumana*. Sinice *yeu zu*.

Amœn. exot., 801 :—柚 *juu*, vulgo *aje tats banna*. Malus Aurantia fructu prægrandi, superficie scorbiculata inæquali.

SIEBOLD, *Syn. plant. œcon. jap.*, 308 :—柚 *Citrus medica*, var. *junos*; idem, *Icon. ined.*, II, and *ibidem*, 313, 朱欒, *Citrus Sabon* (same as *C. decumana*). The same in the *Phon zo* [LXV, 17, 18].

櫾 *Yu* is the name of a tree repeatedly mentioned in the *Shan hai king*. KUO P'O explains that it resembles the *kü* (orange), but the fruit is large, sour, has a thick rind.

The same tree is noticed by the philosopher LIE TSZ' [5th century B.C.] as an evergreen tree in the kingdoms of 吳 Wu and 楚 Ch'u (Chekiang and Hukuang), which bears a red, sour fruit. The ancient dictionary *Chen yün* says that this character *yu* is the same as 柚.

Jap., 610, *Citrus decumana*, L., 朱欒.

488.—枳 *Chi*. A tree or shrub of the orange tribe mentioned in the *Chou li* [II, 460] :—Lorsque les orangers

à fruits doux (橘) passent la rivière Hoaï (淮) et sont transplantés au nord, ils deviennent orangers a fruits aigres (枳).

The *chi* is mentioned in the *Shan hai king*. The character occurs there also coupled with 棘 thorns. Kuo P'o explains that it has thorns, which inflict wounds. The *Shuo wen* says the *chi* resembles the *kü* (orange).

P., XXXVI, 13, 枳實 *chi* fruit. The rind of this fruit is used as a medicine and called 枳殼 *chi k'io*. The ancient authors describe this plant as a very thorny shrub with fruits resembling the orange, but smaller and bitter. *Ch.*, XXXIII, 44, rude drawing; small globular fruit; thorns. I suspect this is the *Citrus fusca* of Loureiro [*Flora cochin.*, 571]. Citrus ramosissima aculeata, folia ingrati odoris . . . . bacca globosa, 2 pollicaris, aspera, fusco-viridis . . . pulpa subamara, ingrata. Virtus corticis integri baccarum: attenuans, deobstruens, eccoprotica. Sinice *chi keu*.

Amœn. exot., 801 :—枳 *Ssi*, vulgo *karatats banna*, aliis *yees* dictus. Frutex sylvestris spinosus trifolius . . . . fructu mali aurantii tetrico, odoris ingrati. Detailed description with a drawing. Ex fructus siccato cortice admixtis speciebus aliis, decoquitur medicamentum celebre *ki koku* dictum, quo nomine vulgus ipsum quoque fructum appellitat. This is, according to Franchet, the *Citrus trifoliata*, L., (*Pseudægle sepiaria*, Miq.). Hemsley [in the *Index Floræ sin.*, iii] says that it is the same as *Ægle sepiaria*, DC.

Franchet does not identify the plant represented in the *Phon zo* [LXXXVII, 6] under 枳, but he refers the *Citrus trifoliata* to the drawing [fol. 8] under 枸橘. Siebold [*Icon. ined.*, II], same Chinese name, *Ægle sepiaria*. Siebold [*Syn. plant. œcon. jap.*, 307] *Ægle sepiaria*, 臭橘. *gedsu*. Omnium sane fruticum ad sepas vivas aptissimum.

It seems that in Japan the above three Chinese names are all applied to the same plant, *Egle sepiaria* or *Citrus trifoliata*. But the Chinese authors keep the latter two names apart for a plant distinct from the *chi*.

P., XXXVI, 20, 枸橘 *kou kü*, also 臭橘 *ch'ou kü* (stinking orange). The Chinese authors say that it is a very common shrub, resembling the orange tree. It is very thorny. The flowers are white, not fragrant. The fruit is globular, resembles that of the 枳 *chi*, but the rind is thinner, not fragrant. The people plant this shrub to form hedges.

Ch. [XXXV, 61] figures under *kou kü* an *Aurantiacea* with long spines, large flowers and fruit of the size of a walnut. The *Kü lu* (a treatise on oranges, of the 12th century) states that the *kou kü* is much cultivated for hedges, and that its fruit is used as a medicine like that of the *chi*.

One of the two *Aurantiaceæ* noticed by the Chinese authors under the names of *chi* and *kou kü* as distinct plants may perhaps be the *Triphasia trifoliata*, DC., (*Tr. aurantiola*, Loureiro, 189], a thorny bush indigenous to China as well as to Japan and cultivated at Kew [*Gardn. Chron.*, 1881, II, 654]. It has frequently been confounded with the *Citrus trifoliata*.

Jap., 611, *Citrus fusca*, Lour., 枳. *C.*, 133, 137. *S.*, IX, 28.
E., 254, family 枳.
„ 609, „ *bigaradia*, Duham, 臭橙.
„ 612, „ *japonica*, Thbg., var. *fructu globoso*, 金橘.
„ 613, „ *japonica*, Thbg., var. *fructu elliptico*, 金橘.
„ 614, „ *medica*, Risso., var. *chirocarpus*, Lour., 佛手柑.

489.—棋 *Kü*. Mentioned as the name of a fruit in the *Li ki* [I, 461]. [*V. supra*, 484, note]. Legge says it is *Hovenia dulcis*. Also in the *Li ki* [I, 119] noticed as a fruit used by women as a present of introduction.

The Chinese name for *Hovenia dulcis*, Thbg., used also in Japan, is properly 枳椇 *chi kü*, also written 枳枸 *chi kou*. *P.*, XXXI, 30. *Ch.*, XXXII, 38, good drawing, showing the characteristic recurved fleshy peduncles on which the small pea-like fruits are seated. These peduncles are eaten, not the fruit. The *Kiu huang* [LV, 12] figures this tree under the name of 拐棗 *kuai tsao* (crooked jujube).

This tree was first figured and described under the above Chinese names in the *Amœn. exot.*, 808, 809. *Phon zo*, LXIX, 23. Sieb. & Zucc., *Flora japon.*, I, 135, tab. 73, 74. *Hovenia dulcis* is a common tree in China and Japan.

E., 281, family 枳椇, with good figure and 14 names.

C., 129. *Sm.*, 115.

The 枸 of the *Shi king* [490] mentioned *E.*, 281, as a synonym, see *E.*, 251, family 枸, without figure.

Other *Rhamnaceæ* are mentioned :—

Jap., 335, *Berchemia racemosa*, S. & Z., 山藤.

„ 1869, *Rhamnus japonica*, Max., var. *genuina*, Max., 鼠李.

490.—枸 *Kou*. A plant mentioned in the *Shi king*. Legge says that in the Japanese plates it is the *Hovenia dulcis*.

Shi king, 273 :—On the hills of the south is the *kou*.

Mao explains 枸 by 枳枸 *chi kou* (*Hovenia dulcis*). The *Shuo wen* says the *kou* is a tree (of the fruit) of which a sauce is made. It grows in Shu (Sz'ch'uan).

Lu Ki :—The *kou* is a mountain tree. It resembles the 櫨 *lu* (*Eriobotrya*). It is also called 枸骨 *kou ku*, is of the size of the white poplar. The wood is white and veined : boxes can be made of it. The branches are crooked. The fruits are some inches long, like a finger, seated at the extremities of the branches ; they are of a pleasant, sweet taste and ripen in the 8th or 9th month ; the best are found in Kiangnan. This tree is now planted in the government

gardens [今官園種. LEGGE translates :—Wealthy men are fond of planting it in the gardens. *Kuan yüan* may also be translated by "gardens of the officers"]. They call it 木蜜 *mu mi* or tree honey, also 枳枸 *chi kou*.

Hovenia dulcis may be intended in the above vague description. In *P.*, *mu mi* and *chi kou* are given as names for this tree. But the name 枸骨 *kou ku* in Japan as well as in China is applied to an *Ilex*. [*P.*, XXXVI, 40. *Ch.*, XXXV, 50].

Amœn. exot., 781, 枸骨 *ojo*, vulgo *tsuge*. Buxus arborescens, etc. MAXIMOWICZ thinks that this is probably *Ilex subpubernla*, Miq. The Chinese drawing in *Ch.* looks rather like *I. aquifolium*.

E., 306, family 衛矛, with figure of a small tree armed with long spines. Leaves entire, certainly not *Ilex cornuta*.

Sm., 114.

E., 251, *v.* 489.

E., 154, family 麻黃, mentions 狗骨 as a synonym of *Ephedra*.

Of *Ilicineæ* with Chinese names :—

Jap., 1127, *Ilex cornuta*, Ldl., 狗骨 (支那產).
" 1130, " *integra*, Thbg., 細葉冬青.
" 1131, " *latifolia*, Thbg., 娑羅樹.
" 1134, " *pedunculosa*, Miq., 冬青.
" 1138, " *Sieboldi*, Miq., 落霜紅.

491.—The 柿 *shi* is mentioned in the *Li ki* [I, 461] among the fruits eaten by the ancient Chinese. [*V. supra*, 484, note.] The *Shuo wen* explains *shi* by red fruit.

This is the Chinese persimmon, *Diospyros*. According to NAUDIN [*Remarques au sujet des Plaqueminiers*] the numerous varieties of this favorite fruit of the Chinese belong to two species, *D. sinensis*, Blume, (*D. Kaki*, Lin. fil.) and *D. Schitze*, Bge. The Japanese cultivate a third species, the *D. Kæmpferi*, Naudin, first described and figured by

KÆMPFER [*Amœn. exot.*, 805, 806] 柿 *si*, vulgo *kaki*. Ficus hortensis, fructu ossiculato eduli, folio Pyri, etc.

P., XXX, 17, *shi*. *Ch.*, XXXII, 33. *Kin huang*, LVIII, 3; good drawing.

E., 234, family 柿, with good figure. *Jap.*, 809.

Jap., 810, *Diospyros Lotus*, L. [*V. supra*, 484.]

492.—葡萄 *Yü*. LEGGE translates this character correctly by grapes. It denotes wild vine.

Shi king, 231 ["Life in Pin"]:—In the sixth month they eat the grapes.

MAO explains *yü* by 蘡薁 *ying yü*, as does also the *Shuo wen*. The *Kuang ya* calls it 燕薁 *yen yü* or 蘡舌 *ying she*.

P., XXXIII, 9. *ying yü*. The Chinese authors quoted [7th and 9th centuries] say that the *ying yü*, resembles the 葡萄 *p'u t'ao* or common grape,[26] but the berries are smaller. They are of a sour and sweet taste and are also called 野葡萄 *ye p'u t'ao*, wild grape.

There are in the Peking mountains two kinds of wild grape with edible black berries of a sweet taste and the size of black currants, the *Vitis labrusca*, L., var. *ficifolia*, Bge., and the *V. bryoniæfolia*, Bge. Both these vines are called *ye p'u t'ao* by the natives.

Compare under the above names the drawings *Ch.*, XXXII, 3, and *Kiu huang*, LVIII, 12.

SIEBOLD, *Syn. plant. arom. jap.*, 241:—*Vitis flexuosa*, Thbg. *nobudoo*, 蘡薁. Sponte ubique crescit, fructibus parvis, nigris, sapidis onusta. HOFFM. & SCHULTES, 624. Same Chinese name. *Vitis ficifolia*, Bge. *Phon zo* [LXXI, 13] same Chinese name, *Vitis*, not determined by FRANCHET.

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[26] The true vine, *Vitis vinifera*, L., now extensively cultivated in the northern part of China, was introduced into China from Western Asia, in about B.C. 125, and is known since that time under the name of *p'u t'ao*. [See ***Botan. sin.*** I, 25.]

E., 113, family **葡萄**. with good figure of *Vitis vinifera*, and 11 names. *S.*, XI, 18.

E., 142, family **蘡薁**, with good figure of a wild grape.

V. supra, 453, 182.

493.—**萇楚** *Ch'ang ch'u*. Name of an ode in the *Shi king*. LEGGE says that *ch'ang ch'u* is the Carambola tree.

217.—In the low, wet grounds is the carambola tree.: soft and pliant are its branches.

This plant is mentioned in the *Rh ya* [198]. KUO P'O says it is the **羊桃** *yang t'ao* (goat's peach). The same is said in the *Shuo wen*.

LU KI :—The *ch'ang ch'u* is now called *yang t'ao*. Its leaves are long and narrow, its flowers of a purplish red, and its branches so weak, that when they are more than a foot long, they go creeping along on the grass. The people remove the rind of the stem near the root, after placing it in hot ashes, and make pencil-tubes of it.

A notice of the same plant is found in *P.*, XVIII*b*, 37, under the head of **羊桃** *yang t'ao*, which is identified there with the *ch'ang ch'u* of the *Shi king* and the *Rh ya*. The name *yang t'ao* is from the *Pen ts'ao king*. LI SHI-CHEN describes it as a plant with a weak creeping stem of the thickness of a finger, large leaves like the palm of the hand, white (downy) on the under side, resembling those of the *Boehmeria* but roundish. The branches when steeped in water become viscid. *Ch.* [XXII, 42, 43] under the name of *yang t'ao*, figures two quite different herbaceous plants : bad drawings.

The *yang t'ao* of *P.* is certainly not *Averrhoa Carambola*, and the ancient commentators have also not meant to identify the *ch'ang ch'u* of the Classics with the *Carambola*, a tropical tree, which succeeds well in the southern provinces of China, but was hardly even known in the north. WILLIAMS [*Dict.*, 28] and LEGGE have been misled by the name *yang t'ao*, which at Canton is applied

to the *Carambola*, or Chinese gooseberry as it is called by Europeans.[27]

I may observe that the name *yang t'ao* is also applied in China to *Actinidia chinensis*, Pl, a climbing shrub with edible fruit about the size of a plum. [*See* HENRY, *l.c.*, 544]. It is well figured in *Ch.* [XXXI, 21], where the names *yang t'ao* and 獼猴桃 *mi hou t'ao* (monkey's peach) are given. *P.*, XXXIII, 10.

SIEBOLD, *Icon. ined. jap.*, II, 獼猴桃, *Actinidia rufa*. Planch. *Phon zo*, LXXI, 15, 16. Same Chinese name. *Actinidia arguta*, Planch.

494.—栗 *Li* (the chestnut). This character was originally written 桌. The *Shuo wen* explains that it is intended to represent the fruits hanging down. The Chinese chestnut is the same as that cultivated in Europe, *Castanea vulgaris*, Lam. It is grown throughout the empire. It is frequently mentioned in the Classics.

Shi king, 177, 190:—In the low, wet grounds are the chestnuts. 358:—On the mountain are the chestnut trees. 237:—The bitter gourds hanging from the branches of the chestnut tree. 81:—Duke Wan [7th century B.C.] built the mansion at Ts'oo (楚). He planted about it hazel (榛) and chestnut trees and other trees.

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[27] The first Chinese author who mentions the *Carambola* and describes it quite correctly is KI HAN, in the *Nan fang ts'ao mu chuang* [3rd century. See *Botan. sin.*, I, 38]. It is there termed 五棱子 *wu lien tsz'*, which, as the author explains, means five ridges and refers to the shape of the fruit, which is said to be very acid. LI SHI-CHEN [in *P.*, XXXI, 10] likewise gives a good description of the *Carambola* fruit under the above name, and adds that in Min (Fukien) it is called 陽桃 *yang tao*. He compares the shape of the fruit with a stone roller used by Chinese farmers for rolling down the fields when sown. A good drawing of the Carambola *Ch.*, XXXI, 45, *wu lien*. [See also *Phon zo*, LXVII, 14.]

CONF. *Analects*, 26 :—Altars of the spirits of the land (社). The Hia [dynasty, B.C. 2205–1766] used the pine tree (松), the Yin [B.C. 1766–1122] used the cypress (柏), and the men of the Chou [B.C. 1122–249] the chestnut.

The commentary says :—These trees were planted by the founders of the several dynasties about the altars of the spirits of the land (土地神).

We read in the *Chou li* [I, 193] :—Le grand directeur des multitudes (大司徒) dispose les murs de l'enceinte consacrée au génie de la terre et à celui des céréales. Il les constitue seigneurs des champs, en plantant pour représenter chaque génie l'arbre qui convient au terrain. Commentator B. (CHENG HÜAN) :—Les arbres convenables furent successivement le pin (松), le cyprès (柏), le châtaignier.

Chou li, I, 108 :—The chestnut mentioned among the fruits presented to the Son of Heaven. [*See* quotation *supra*, 470.]

Li ki, I, 119 :—Chestnuts used as a present of introduction by women. I, 461, 451. [*See* fruits eaten by the ancient Chinese, *supra*, 484, note.]

The chestnut is repeatedly mentioned in the *Shan hai king*, but not in the text of the *Rh ya*.

P., XXIX, 28, *li*. *Ch.* XXXII, 15, *li*. Well figured.

Amœn. exot., 816 :—栗 *riitz*, vulgo *kurí*. Castanea sativa vulgaris, alia fructu majore, alia minori. *Phon co*, LXII. 14, 15.

E., 222, family 栗, with good figure and 12 names, including *infra*, 495, except 橡.

H., 226–228, are all mentioned as synonyms, except 鉤栗, which is a *Quercus*, synonym of 櫟. *E.*, 225. *H.*, 95.

S., XI, 19. *Sm.*, 60. *C.*, 707. *A.*, XV, 175. The latter *C. chinensis*, Hce.

Jap., 537, *C. vulgaris*, var. *japonica*, DC., 栗.

495.—栭 *Rh.* This is mentioned in the *Li ki* [I, 461] among the fruits eaten by the ancient Chinese. [*See* quotation in 484, note.] LEGGE translates *rh* by small chestnuts.

Rh ya, 233, 栭, same as 栵 *lie*. KUO P'O explains:—Small chestnuts.

The character *lie* occurs in the *Shi king* [150]. MAO understands it of *rh* as in the *Rh ya*, but CHU HI takes it as trees growing in rows, and thus it is translated by LEGGE.

LU KI:—The *lie* is the same as the *rh*. Leaves like those of the elm. Veined, strong, pliable wood, of a red colour, fit for making thills of carriages.

The Chinese tree which bears the small chestnut is figured in *Ch.* [XXXII, 16] under 茅栗 *mao li*, and is also noticed in *P.* at the end of the article *li*, the common chestnut. The *mao li* is likewise spoken of by LU KI as producing the small chestnut.

CL. ABEL, in 1816, saw small chestnuts exposed for sale near the Poyang lake. They were not larger than the common bon nut [*Journey in the Interior of China*, 165, 166]. FORTUNE [*Res. am. Chin.*, 51, 144] met with this small chestnut in the hills near Ningpo. He says:—It is a delicious little kind, bearing fruit about the size and form of our common hazel-nut. This was introduced into England and India [*Gardn. Chron.*, 1860, 170]. Father DAVID notices small chestnuts, of the size of cherries, produced on dwarf trees near Kiukiang [*Nouv. Arch. Mus. hist. nat.*, VIII, 33]. [Compare also HENRY, *l.c.*, 227.]

The same small chestnuts are also produced in Japan. See *Gardn. Chron.*, 1875, 270, Japanese Edibles exhibited at London, 1873. Chestnuts about the size of a small kidney bean. These small Japanese chestnuts are figured in the *Phon zo* [LXII, 16] under 茅栗.

E., 222, family 栗, a synonym: also written 毛栗. *A.*, XV, 175, 茅, *Quercus cornea*, Lour.

496.—榛 *Chen.* The hazel-nut. It is repeatedly mentioned in the Classics. There is an ancient character, 𣏌 or 𣏌, which the *Kuang yü* dictionary says is the same as *chen.* But the *Shuo wen* states that it is a fruit like a small chestnut, keeping 榛 apart as the name of a tree, while the *Kuang ya* identifies 𣏌 with the chestnut.

Shi king, 62 :—The hazel (*chen*) grows on the hill. 81 :—Hazels planted by Duke WAN. [*See* the quotation under 494.] 224 :—Young doves in the hazel tree. 395 :—The blue flies lighting in the hazel tree. 444 :—How abundantly grow the hazel on the foot of the Han hills!

Li ki, I, 119 :—Hazel-nuts used for presents of introduction by women. I, 461 :—Fruits eaten by the ancient Chinese. [*See* 484, note.] I, 432 :—They presented their offerings in skin caps and white robes. They wore sashes of dolichos cloth and carried staffs of hazel.

Chou li, I, 108 :—Offerings. [*V. supra*, 470.]

The *chen* is frequently mentioned in the *Shan hai king.* KUO P'O explains :—The fruit resembles the chestnut, but is smaller; it has a pleasant taste.

LU KI :—The *chen* is a sort of *li* (chestnut). There are two kinds. One of these trees in its bark and leaves resembles the chestnut. It bears a small fruit resembling that of the 栩 *chu* [*see* the *Rh ya*, 239, an oak); it tastes like the chestnut. This is called the *chen li* (hazel-chestnut). The other kind (a shrub) has branches and leaves like the 木蓼 *mu liao* [an oak, *v. infra*, 534]; it grows about 10 feet high. The fruit resembles in taste the walnut (*hu t'ao*). This kind, which is the true *chen* or hazel-nut, abounds in the mountains of Liaotung (Southern Manchuria) and 上黨 Shang tang (South-eastern Shansi). The fruit resembles that of the 橡 *siang* (an oak, *v. infra*, 534). The branches are fit for torches.

Lu ki's account of the hazel is vague and not characteristic. Li Shi-chen [in *P.*, XXX, 50, under *chen*] gives a better description of it. By the drawing under *chen*. *Ch.*, XXXI, 4. evidently the hazel is intended.

The mountains of Northern China abound in hazels. The nuts are called *chen tsi*. There are two species. The nuts of both are edible and sold in the markets. The fruit of *Corylus heterophylla*, Fisch, with its spreading involucre. resembles that of our common *C. avellana*. But in the other species, the *C. mandshurica*, Maxim. (which by some is considered as a variety of the American *C. rostrata*, Ait.). the campanulate involucre is longer than the nut; it covers not only the whole nut but is contracted beyond the apex of the nut into a long rostrum. The whole involucre is covered with stinging bristles.

Both these species occur also in Japan.

Amœn. exot., 816, 榛 *sin*, vulgo *fasi hasibami*, *fa*. Corylus peregrina sativa, nuce oblonga, calyce brevi non barbato. Siebold, *Syn. plant. œcon. jap.*, 158, *Corylus americana*, *Hasi-hama*, 榛. Edunt nuces. Siebold, *Icon. inedit.*, VII, same Chinese name, *Corylus heterophylla*. [See also the *Phon zo.* LXVI, 13, 14.

E., 225, family 榛. Figure more like an oak or chestnut tree.

Jap., 690, *Corylus heterophylla*, Fisch.

S., XI, 32. *C.*, 38, *C. heterophylla* (the hazels with flat top).

C. rostrata, Ait., (with pointed top).

197.—椒 *Tsiao*. This character is met with three times in the *Shi*. Legge translates it by pepper plant.

Shi king, 179:—The clusters of the pepper plant (*tsiao*) large and luxuriant, would fill both your hands . . . . O the pepper plant, how its shoots (條 rather branches) extend! 207:—Give me a stalk of the pepper plant. 603:—Pepper-like smell. Mao explains *tsiao* by 芬香 (fragrance). Another ancient commentator says that the *tsiao* was used in flavoring wine.

See the *Rh ya*, 259, *ta tsiao*. The *tsiao* is repeatedly mentioned in the *Shan hai king*. Kuo P'o explains :—A small tree, injurious to wood-worms. The *Shan hai king* mentions also the 秦椒 *Ts'in tsiao* and as an herbaceous plant. *Li sao* 6. 50 :—申椒 *shen tsiao*. Poivrier du pays de Chen (Southern Honan). 19 :—Monticules plantés de poivriers. 56, 58 :—Poivrier.

Li ki :—The *tsiao* tree resembles the 茱萸 *chu yü* [*see the next*]. It is provided with spines. Its leaves are hard, shining. The people of Shu (Sz'ch'uan) call it 荼 *t'u*, the people of Wu (Chekiang, Kiangsi) term it 茗 *ming*[28]. Of the leaves they prepare, by boiling them, a fragrant substance. There are several kinds of *tsiao*. One of them, which grows in the mountains of 成皐 *Ch'eng kao* (Department of K'ai-feng fu, in Honan) has leaves resembling those of the bamboo. This tree is like the 蜀椒 *shu tsiao*. It (the fruit or the leaves) is somewhat poisonous and not used in medicine. The *tsiao* enters into the preparation of beverages and meats ; fowl and sucking-pig are seasoned with it. On the islands of the Eastern Sea there is a kind of *tsiao* tree the fruit of which is not round but elongate, very fragrant, with a taste like orange-peel. The flesh of deer, when they eat the leaves of this tree, becomes fragrant.

Tsiao is nowadays a general term for fruits with an aromatic, hot and pungent taste. 辣椒 *la tsiao* is cayenne pepper or chillies, 胡椒 *hu tsiao* is the common pepper, *Piper nigrum*, and 花椒 *hua tsiao* the fruit of *Zanthoxylon*, Chinese pepper. As chillies and common pepper were unknown to the Chinese in the classical period, the term *tsiao* in the *Shi king* can only be referred to *Zanthoxylon*, of which more than a dozen species are known in China. The

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[28] This seems to be a mistake. *T'u* and *ming* are ancient terms for the tea-leaf. [*See* the *Rh ya*, 307.]

tree which in Northern China furnishes the Chinese pepper is the *Zanthoxylon Bungei*, Planch., a tree of middle size, very spiny, bearing in autumn dense clusters of small red berry-like capsules of an aromatic, pungent taste; the leaves are likewise fragrant. This tree grows wild in the mountains and is also much cultivated. It is called 花椒 *hua tsiao* in the popular language, but its original name is 秦椒 *Ts'in tsiao*. This name is found in the *Pen ts'ao king* and is derived from the mountain range of Ts'in-ling which divides the valleys of the rivers Han and Wei in Southern Shensi. This is most probably the pepper of the Classics, although there are, it seems, several species of *Zanthoxylon* in different parts of China, which yield this spice. Several kinds of pepper trees are described in *P.*, XXXII, 1–8, and figured in *Ch.*, XXXIII, 40, 41. [*See also* HENRY, *l.c.*, 42–45].

Amœn. exot., 892, 椒 *seo, sansjo. Piper japonicum.* Detailed description and figure. This is *Zanthoxylon piperitum*, DC., a shrub. SIEBOLD, *Icon. jap. ined.*, *Z. piperitum*, 秦椒. *Phon zo*, LXX, 2–5, various species of *Zanthoxylon* and their Chinese names.

E., 250, family 椒, with five figures. The first a *Zanthoxylon*. *S.*, VIII, 2. *Sm.*, 234. *C.*, 492. The distinctions of *H.*, 42–45, are untenable.

Jap., 2391, *Zanthoxylum ailanthoides*, S. & Z., 食茱萸.
„ 2392, „ *planispinum*, S. & Z., 竹葉椒.
„ 2393, „ *piperitum*, DC., 秦椒.
„ 2394, „ *schinnifolium*, S. & Z., 蜱椒.

498.—There is a passage in the *Li ki* [I, 462, *Nei tsz'*, "Diet of the Ancient Chinese"] which LEGGE renders:—With the three victim animals they used pepper. The character translated by pepper is 薠 *i*. CHENG HÜAN and the *Shuo wen* explain it by 煎茱萸 (fried *chu yü*).

The *Shuo wen* says the *chu yü* is a kind of *tsiao* (*Zanthoxylon*). [*See also* the *Rh ya*, 329.] There are three different plants to which the name *chu yü* is applied.

The 食茱萸 *shi chu yü* (edible *chu yü*) is described in *P.* [XXXII, 19] as a lofty thorny tree resembling the 樗 *ch'u* [*Ailantus*, v. infra, 518]. Branches with white spots, yellow flowers, aromatic, pungent fruits, used in Kiangsu to season meat. The *Kuang ya* calls it 越椒 *yüe tsiao* [*Yüe*= north-east of Chekiang]. According to T'AO HUNG-KING [5th century], this is the *i* mentioned in the *Li ki*, and the 椒榝 *tsiao sha* of the *Rh ya* [329].

The *sha* is mentioned in the *Li sao* [57] :—La plante *cha* (檡) qui ne veuille que le sachet lui soit ouvert. D'HERVEY says :—La plante *cha* est la même que celle qu'on nomme aujourd'hui *chou yu*. Ce serait alors une sort de *Sanguinaria* d'une assez grande espèce. But the *sha* is *Boymia* or *Zanthoxylon*.

According to HOFFM. & SCHULTES [632] 食茱萸 or 越椒 is *Zanthoxylon ailanthoides*, S. & Z. In the *Kwa wi* [116] both the above Chinese names are applied to the same species, described there as a tall tree with yellowish white flowers [compare the above description in *P.*]. *See also* the drawing under the same Chinese names in the *Phon zo* [LXX, 12, 13] which seems rather to refer to a *Rhus*.

The 吳茱萸 *Wu chu yü* or *chu yü* of Wu (Chekiang, Kiangsi) is noticed in *P.* [XXXII, 13] as a drug, the acrid fruit of a tree, resembling the *tsiao* fruit (*Zanthoxylon*). Rude drawing under the above name in *Ch.* [XXXIII. 37]. The drug *Wu chu yü*, obtained from an apothecary's shop at Peking, proved to consist of the fruits of *Boymia* (*Evodia*) *rutæcarpa*, described and depicted in SIEBOLD & ZUCC., *Flora japon.*, I, 50, tab. 21, and SIEBOLD, *Icon. ined.*, II, under 吳茱萸. [Compare also HENRY, *l.c.*, 96, 212.] Same Chinese name of this plant in Hupei. SIEBOLD says that this tree has been introduced from China into Japan, where its fruit is much esteemed as a medicine. *Phon zo*, LXX, under the above Chinese names, 9, 10, *Evodia glauca*, and, 11, 12, *E. rutæcarpa*.

The 山茱萸 *shan chu yü*, mountain *chu yü*, is spoken of in *P.* [XXXVI, 29]. The drawing in *Ch.* [XXXIII, 38] is bad. In Japan the above Chinese name is applied to the fruit of *Cornus officinalis*; SIEBOLD & ZUCC. *Flora, japon.*, I, 100, tab. 50; SIEBOLD, *Icon. ined.*, IV; *Phon zo.* LXXXVII, 15, 16. *Cornus officinalis* has not hitherto been collected in China proper, but SIEBOLD states that it is a Chinese plant. Fruit used in medicine. The drug *shan chu yü*, obtained from a Peking apothecary's shop, proved to be the berries of a *Cornus*.

E., 249, family 欒, with two figures of 山茱萸: one may be intended for *Cornus officinalis*, the other looking more like a *Rosa*. There is also a figure of 吳茱萸, probably of *Evodia rutæcarpa*, copy of *S.*, IX, 22, (with two figures, the other of *Cornus*).

H., 96. *C.*, 1455.

Sm., 234, *Zanthoxylum piperitum*.

A., XV, 155, *Sambucus Loureiriana*, dubia.

IX.—*Trees.*

499.—桑 *Sang*. The mulberry tree. The fruit is 葚 *shen*.

Li ki, I, 264 [*Yüe ling*]:—Last month of spring. The queen, after vigil and fasting, goes in person to the eastern fields, to work on the mulberry trees. She stimulates the wives and younger women of the palace to their business with the worms. Corresponding sentence in the *Hia Calendar*, third month:—攝桑. DOUGLAS translates:—Gathered are the mulberry leaves.

Li ki, I, 271 [*Yüe ling*]:—First month of summer. When the work with the silk-worms is over, the queen presents her cocoons; and the tithe-tax of cocoons generally is collected.

according to the number of mulberry trees. I, 472 :—A bow of mulberry wood. [*See* the quotation in 436.] II, 141 :—A ladle of mulberry wood. [*See* the quotation in 408.]

Chou li, II, 194 :—Fire from mulberry wood. [*See* the quotation in 528, note.]

Shu king, 99 [*Tribute of Yü*] :—Province of 兗州 Yen chou (Western Shantung). Yü made the mulberry grounds (桑土) fit for silk-worms.

Mencius, 336, 337 :—Wen wang (the founder of the Chou dynasty, 12th century B.C.) planted around the homestead, the space beneath the walls, with mulberry trees, with which the women nourished silk-worms, and thus the old men were able to have silk to wear.

Shi king, 82 :—The duke of Wan [7th century B.C.] surveyed Ts'u and T'ang, with the high hills. He descended and examined the mulberry trees [to see whether the ground was well adapted for their growth]. 126 :—Do not break my mulberry trees. 184 :—The wild geese rest on the bushy mulberry trees. 191 :—On the hillsides are mulberry trees. 199 :—The yellow birds flit about and rest upon the mulberry trees. 222 :—The turtle-dove is in the mulberry tree. 272, 301, 519 :—Mulberry tree. 337 :—The mulberry tree and the *tsz'* [*c. infra*, 508] must be regarded with reverence. 414 :—In the low, wet grounds the mulberry trees are beautiful and luxuriant, the leaves are glossy, dark. 417 :—They gather firewood of branches of the mulberry tree. 164 :—They gather the mulberry leaves. 228 ["Life in Pin"] :—With the spring days the warmth begins, and the oriole utters its song. The young women take their deep baskets, and go along the small paths, looking for the tender leaves of the mulberry tree. *Ibidem* :—In the silk-worm month they strip the mulberry branches of their leaves, and take their axes and hatchets, to lop off those that are distant and high, only stripping the young trees of their leaves.

What LEGGE translates by young trees is in the Chinese text 女桑 *nü sang*, female (women's) mulberry. The commentary says a small mulberry. [*See* the *Rh ya*, 303.]

99 :—Before the mulberry tree has shed its leaves, how rich and glossy are they ! Ah ! thou dove, eat not its fruit. When the mulberry tree sheds its leaves, they fall yellow on the ground. 葚 *shen* in the text. MAO explains it by 桑實 (mulberry fruit). [*See* the *Rh ya*, 302]. The character is also written 椹 and 黮, as in the *Shi king* [620].

236 :—Creeping about were the caterpillars, all over the mulberry grounds. 234 :—I gathered the roots of the mulberry tree, 桑土. The commentary explains that the root of the tree is meant. The white rind of the root of the mulberry tree is still used as a medicine.

The mulberry tree is cultivated in all the provinces of China. The principal object of its culture is the leaf on which the silk-worm feeds. Silk is raised wherever the tree grows. The cultivation of the mulberry tree and the breeding of silk-worms for the manufacture of silk can be traced back to the remotest time of Chinese civilisation. According to an ancient tradition related in HUAI NAN WANG'S treatise on the rearing of silk-worms [first century B.C.]. 西陵 SILING, Empress of HUANG TI [B.C. 2697] first taught the people the art of rearing the silk-worm. She was consequently deified and worshipped.

The mulberry trees cultivated in China for the breeding of silk-worms are all varieties of *Morus alba*, L., as also the trees grown in Western Asia and Southern Europe for the same purposes. *M. nigra*, a native of Western Asia, and much cultivated there for its excellent dark red fruit, is not fit for rearing silk-worms. The name *M. alba* was given to the silk-worm mulberry by C. BAUHIN [*Pinax theatri bot.*, 459] on account of its white fruit. But in China (at Peking at least) the fruit of *M. alba* is generally of a

red colour. I have seldom seen white berries there. The Chinese eat the fruit, but it is insipid.

Bureau in De Candolle's *Prodromus* [XVII, 242] suggests that *M. alba* var. *mongolica*, first discovered by Father David in the mountains of Southern Mongolia, may be the original wild type of the white mulberry. This variety, very common in the mountains of Northern China, is characterised by its leaves being very irregular in shape; they are always lobed, from three to five lobes, the margin of which is provided with long cuspidate teeth; the berries are dark red, nearly black. According to the late Dr. Hance [*Journ. Botan.*, 1875, 135] the mulberry cultivated in the south has invariably undivided leaves; but the cultivated trees in the neighbourhood of Peking have habitually lobed leaves. The Peking cultivated mulberry trees belong to the variety *latifolia*, which name Bureau applies to the *Morus alba* most generally cultivated in South and Middle China, and which has also been named *M. multiaulis*. Other varieties of *M. alba* recorded in China are, according to Bureau, *l.c.*, v. *nigriformis*, Macao (Callery), v. *indica*, Canton (Hedde), Formosa (Oldham), v. *atropurpurea* (*M. rubra*, Lour.).

P., XXXVI; 桑 *sang*. The mulberry tree is well figured in *Ch.* [XXXIII, 34]. *Kin huang*, LVI, 16, rude drawing.

In Japan, where sericulture is also highly developed, the same broad-leaved variety of *M. alba* is extensively cultivated for the same purposes. [*See* Miquel, Prol. *Flora japon.*, 130]; Franchet & Savatier *Enum. Plant. Japon.* [I, 432]. The rearing of silk-worms in Japan, according to the Japanese annals, dates from the 3rd or 4th century. [*See* N. Rondot's excellent work *Les Soies*, 1885, I, 272. Siebold [*Syn. plant. œcon. jap.*, 161] states that the mulberry tree was introduced into Japan from China.

Amœn. exot., 788:—桑 *soo*, vulgo *kuwa*. Morus fructu albo. Eadem fructu nigro. The *Phon zo* [LXXXVI]

depicts, under their Chinese names, several varieties of *M. alba* cultivated in Japan. 14, 15 :—桑, small entire leaves, red berries. 15, 16 :—白桑 or 魯桑, large entire leaves. 16, 17 :—雞桑 leaves lobed. 18, 19 :—女桑 leaves lobed, dissected. The same names appear in the early Chinese treatises on sericulture. STANISLAS JULIEN, *Culture des mûriers et éducation des vers à soie en Chine*, 1837, p. 5. RONDOT, *l.c.*, I, 216.

E., 245, family 桑, with good figure. *Infra*, 500, is a synonym. *S.*, VIII, 36. *C.*, 1066. *Sm.*, 152. *H.*, 386.

Jap., 1458, *Morus alba*, var. *stylosa*, Bur., 桑.

" " " *latifolia*, Bur., 白桑.

500.—檍 *Yen*. An ancient name for the wild mulberry tree. *Shi king*, 450 :—He thinned and hewed the mountain mulberry trees. The Chinese text has *yen* and 柘 *che*, which latter is not a mulberry tree [*see the next*].

Rh ya, 311 :—*Yen* explained by mountain mulberry tree.

Shu king, 102 [Tribute of Yü]:—Province of 青州 Ts'ing chou (Shantung). The wild tribes of Lai-i brought in their baskets the silk from the mountain mulberry (*yen*).

Chou li, II, 581 :—Wood of the wild mulberry used for bows. [*See* the quotation in 501, note.] The *yen* is also mentioned in the *Shan hai king*.

Phon tso, LXXXVI, 14, 15 :—山桑 (mountain mulberry). The drawing represents a mulberry with small leaves and red berries. GEERTS, *Japanese Woods*, 檍, *Morus indica*.

501.—柘 *Che*, a tree mentioned in the *Shi king* together with the preceding. It is not a mulberry tree, as LEGGE thinks, although the *Shuo wen* says that it is a kind of mulberry.

Li ki, I, 264 [*Yüe ling*] :—Last month of spring. Orders are given to the foresters not to allow the cutting down of the mulberry trees (*sang*) and the silk-worm oaks (*che*. The

che is also not an oak). II, 400 :—The game of pitch-pot. [*See* the quotation in 485.] Arrows made of mulberry wood. The Chinese text has *che*.

Chou li, II, 194 :—Fire from the *che* wood. [*See* the quotation in 528, note.] II, 581 :—The *che* furnishes the best wood for making bows.[29]

P., XXXVI, 9, *che*. It is said there that this tree is common in the mountains ; its veined wood is fit for making utensils, its trunk is straight, it grows bushy, the leaves are copious, thick, roundish, lobed ; they are good for feeding silk-worms, and the silk thus obtained is used for making lute-strings which give a clearer sound than the ordinary ones. Its globular fruit resembles the mulberry. The seeds look like those of *Zanthoxylon*. According to the *Ku kin chu* the fruit of the *che* tree is called 雀 *chui*. Birds are very fond of it. The wood yields a yellowish red dye, called the *che* yellow, which is used for dyeing the imperial garments.

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[29] *Chou li*, II, 581 :—Ouvriers des arcs. Il y a sept espèces de bois qu'on prend pour faire le corps de l'arc :—

1.—L'arbre *tche* (柘). Commentator D. :—Il est au premier rang. Il a le bois dur comme la pierre (石).

2.—L'arbre *y* (檍). Commentator D. :—Il a peu de branches et de feuilles. Son bois est très courbe. On l'appelle ordinairement *nieou kin* (牛筋) nerf de bœuf [*v. infra*, 544]. *Rh ya*, 230.

3.—*Yen sang* (檿桑), le mûrier sauvage ou des montagnes. Commentator A. :—Le *koue yu* dit qu'on l'emploie pour faire des arcs et des carquois [*v.* 500].

4.—L'oranger à petites oranges [橘, *v. supra*, 486]. Commentator D. :—Il a la peau plissée et beaucoup de solidité.

5.—Le coignassier [木瓜, *v. supra*, 478]. Commentator D. :—Il a un bois serré, ferme et fort.

6.—Le bois d'épine (荊) *king*. Commentator D. :—Épineux (楚). [*V. infra*, 521, *Vitex*.]

7.—Le bambou [竹, *v. infra*, 563]. Commentator D. :—Le bambou est solide, mais il a des nœuds.

After this *P.* notices the 奴柘 *nu che*, a tree which is said by an author of the 8th century to resemble the *che*, but to have axillar thorns. Its leaves do not fall off in winter. It grows in the wild mountainous country of Kiangnan (present Kiangsi). LI SHI-CHEN says, this tree resembles the *che*, but is provided with thorns, and smaller. Its leaves, which resemble those of the 柞 *tso* (an oak, *v. infra*, 534), but are smaller, are used for feeding silk-worms.

See in *Ch.*, XXXV, 46 and 27, figures representing these two trees: also *Kin huang*, LVI, 5: rude drawing.

The *che* tree of the Chinese is now well-known to our botanists. It is the *Cudrania triloba* of the order *Artocarpeæ*, to which belongs also the mulberry tree. It was first described by Dr. HANCE in 1868. [*See* HOOKER, *Icon. plant.*, VIII, 1887, tab. 1792.] It has been gathered in various parts of China by DEBEAUX, FORBES, DAVID, HENRY. F. B. FORBES writes [in the *Journ. Bot.*, 1883, 145] that the tree varies much in habit, being found often with thorns and as often without them. The typical form of the leaves is distinctly 3-lobed. [*See also* HENRY, *l.c.*, 19.]

I cannot say what the drawing in the *Phon zo* [LXXXVII, 1] under 奴柘 is intended for. FRANCHET & SAVATIER [*l.c.*, I, 434] mention the *Cudrania javanensis*, Trée., in Japan. It is represented in the *Phon zo* [*l.c.*, 5] but under the same Chinese name as the *Broussonetia* [*v. infra*, 503].

E., 248, family 柘, with recognizable figure of *Cudrania*.

Kan [502] is a synonym.

Jap., 715, *Cudrania triloba*, Hce., 奴柘.

502.—榦 *Kan*, also written 幹. See *W.D.*, 374, the trunk of a tree. But in the Classics this character sometimes seems to designate a distinct tree.

In the *Shu king* [112. Tribute of Yü] the *kan* is mentioned together with other trees as produced in the province of 荊州 King chou (Hukuang). LEGGE translates, wood for

bows. K'UNG AN-KUO defines *kan* by 柘 [*see the preceding*]. TS'AI understands, in general, wood fit for making bows.

Li ki, I, 265 [*Yüe ling*] :—Last month of spring. Orders are given to the chiefs of works to inspect the materials in the five store-houses . . . . those of arrows and wood for bows. 箭幹 *tsien kan*. Regarding the first character, which properly means an arrow, but also a kind of small bamboo, *see* 564. According to HENRY [*l.c.*, 238], *tsien kan* in Hupei is a name for *Arundo madagascarensis*, Kth.

Chou li, II. 461 :—On estime le bois dur du pays de King (荊幹). Commentator B. (CHENG HÜAN) :—C'est le bois 柘 qui est employé pour le manche ou milieu des arcs, des arbalètes.

503.—穀 *Ku* [not to be confounded with 穀 *ku*, corn, *v. supra*, 335] is, as LEGGE correctly states, a name for the paper mulberry, *Broussonetia papyrifera*, Vent.

Shi king, 297, 301 :—Yellow bird, do not settle on the *Broussonetia*. MAO explains *ku* by bad tree, the *Shuo wen* by 楮 *ch'u* and writes the first name 穀 *ku*. Both these names, *ku* and *ch'u*, occur in the *Shan hai king*. KUO P'O explains that it is also called 構 *kou*. Paper is made of its bark.

LU KI :—The people of 幽州 Yu chou (Northern Chili) call the *ku* tree 穀桑 *ku sang* (*ku* mulberry) ; another name for it is *ch'u sang*. In 荊 King (Hukuang), 揚 Yang (Anhui, Chekiang) and in 交廣 Kiao kuang (Kuangtung) it is *ku*, in 中州 Chung chou (Honan) *ch'u*. Now in Kiangnan the people make cloth and paper from its bark. The paper is several *chang* long, pure white, shining, of excellent quality. The young leaves of the tree may be eaten.

P., XXXVI, 10, 楮 *ch'u*. This character was originally written 杼 and 褚. Good description given of the tree. The *Yu yang tsa tsu* [9th century] distinguishes two varieties, that with divided (lobed) leaves, called *ch'u* and that with

undivided leaves 構 *kou*. A good drawing of the tree in *Ch.*, XXXIII, 57.

Amœn. exot., 471, 895 :—楮 cum icone, *Kaadsi*. Papyrus fructu mori celsæ, foliis urticæ mortuæ, cortice papyrifero. Detailed description.

Phon zo. LXXXVII, 2–5, five drawings under the Chinese names 楮, 構 and 穀桑, referred by FRANCHET to *Broussonetia papyrifera*, and [5] to *Cudrania javanensis*.

SIEBOLD, *Syn. plant. œcon. jap.*, 164, *Broussonetia papyrifera*, 楮 *kaminoki*, and, 165, *Br. kazinoki* 構. Utriusque speciei cortex ad chartam conficiendam ubique adhibetur, etiam pro funibus ac liber pro linteo inservit.

Broussonetia papyrifera, Vent., is a common tree in China and Japan.

E., 262, family 楮, with good figure.
S., VIII, 38. *A.*, XV, 35. *H.*, 179.
Jap., 382, *Broussonetia Kasinoki*, Sieb., 構.
„ 383, „ *papyrifera*, Vent., 楮.

504.—松 *Sung* is a general term for coniferous trees, and refers especially to the genera *Pinus*, *Abies*, *Larix*. LEGGE, in translating the Classics, renders the character *sung* correctly by fir tree, or pine, for in the Classics it denotes probably always the *Pinus sinensis*, Lamb., (*P. Massoniana*, Lamb.), the Chinese pine, the most common species in China, found all over the empire. Compare HENRY, *l.c.*, 400, *sung*, *Pinus Massoniana*, the common pine about Ichang. *See also* an interesting notice of the Chinese pine by TH. SAMPSON, in *Notes and Queries on China and Japan*, 1868, 52. In the Classics and other ancient Chinese writings the *sung* is frequently mentioned together with the *po* (*Thuja*).

Shi king, 258 :—Like the luxuriance of the fir (*sung*) and the cypress (栢 *po*). 450 :—Firs and cypresses (*po*) in the hills. 629 :—The firs of Tsu lai and the cypresses (*po*) of Sin fu were cut down to build a temple. [Tsu lai and Sin fu

mountains in T'ai an, Shantung.] 646 :—We ascended the hill of King (near the capital of the Shang dynasty) where the pines (*sung*) and the cypresses (*po*) grow symmetrically. We cut them down to build a temple. 102 :—The waters of the 淇 Ki (a tributary of the Wei, in North-eastern Honan) flow smoothly, there are the oars of cedar (*hui*, c. *infra*, 506) and the boats of pine (*sung*). 193 :—On the mountain is the lofty pine. 303 :—Luxuriant head of a pine tree. 390 :—The mistletoe and the dodder growing over the pine tree and the cypress (*po*).

Shu king, 102 :—[Tribute of Yü] :—Pines : a product of the province of Ts'ing chou (Shantung).

Conf. *Anal.*, 26 :—The pine tree, planted by the founder of the Hia dynasty, about the altars of the spirits of the land. [*See* quotation in 494.] 89 :—[*See the next.*]

Regarding pine trees planted about the grave of the Son of Heaven, *v. infra*, 550.

The *Shan hai king* notices the pine trees on 華山 Hua shan (mountain in the south-east of Shensi) and on other mountains.

Li ki, II, 199 :—The outer shell of the coffin of a ruler was of pine (*sung*) ; of a great officer, of cypress (*po*). I, 395 :—The pine and the cypress are the best of all productions of the vegetable world, they endure through all the four seasons without altering a branch or changing a leaf.

Chou li, II, 274 :—La Province de Ki tcheou (Southern Shansi) produit du bois de pin (*sung*) et de cyprès (*po*).

P., XXXIV, 3, *sung*. *Ch.*, XXXIII, 4.

Amœn. exot., 883 :—松 *sjo*, vulgo *maatz*. Pinus in genere : cujus variæ sunt species. Siebold, *Syn. plant. æron. jap.*, 53, *Pinus sylvestris*, Thbg. (= *P. Massoniana* in *Flora japon.*, II, 24, tab. 113, 114) *oomats*, 松. 黑松 (*Pinus nigra*).

E., 197, family 松, with a good figure.
S., IX, 2 ; XI, 34. *Sm.*, 97.

Jap., 1639, *Pinus densiflora*, S. & Z., 赤松.
„ 1640, „ *koraiensis*, S. & Z., 海松.
„ 1641, „ *parviflora*, S. & Z., 五鬚松.
„ 1642, „ *Thunbergii*, Parlat., 黑松.

505.—柏 *Po*, written also 栢, but not in the Classics. In the Classics and other ancient writings this name, denoting, according to LEGGE, the cypress, is frequently coupled with *sung* the pine.

Shi king :—[*See* the quotations under *sung*, 504]. 38 :—It floats about, that boat of cypress wood (*po*) on the current. 73 :—It floats about, that boat of cypress wood (*po*) there in the middle of the 河 Ho (Yellow River).

Shu king, 112 [Tribute of Yü] :—The Province of King chou (Hukuang) produces cypresses (*po*).

CONF. *Analects*, 26 :—The *po* planted by the founder of the Yin dynasty about the altars of the spirits of the land. [*See* the quotation in 494.]

89 :—The Master said :—When the year becomes cold, then we know how the pine (*sung*) and the cypress (*po*) are the last to lose their leaves.

Li ki, I, 159 :—The shell of the coffin is of cypress wood [*see* quotation in 508]. II, 199 :—The outer shell of the coffin of a ruler was of pine ; of a great officer, of cypress (*po*). I, 395 :—The *sung* and *po* the best woods. [*See* the quotation in 504.]

Chou li, II, 274 :—The *po* a product of the Province of Ki chou (Southern Shansi). Regarding *po* trees planted about the graves of the feudal princes, *c. infra*, 550.

Rh ya, 225, 柏, the same as 椈 *kü*.

Nowadays in the north of China the name *po* is applied to *Thuja* (*Biota*) *orientalis*, L. The genus *Thuja* (*Arbor vitæ*) belongs to the tribe of *Cupressineæ* ; it resembles the cypress

in its leaves. The Eastern-Asiatic *arbor vitæ* is a tall tree, very common in China, especially in the northern provinces, and I think the *po* of the Classics is to be referred to this tree, although some Chinese species of *Cupressus* go under the same name.

HENRY, *l.c.*, 353:—*Po* at Ichang is *Cupressus funebris*, and 354; 崖柏 *ai po* is *Biota orientalis*.

P., XXXIV, 1, *po*. *Ch.*, XXXIII, 1, *po*, rude drawing, seems to represent *Thuja orientalis*.

Amœn. exot., 884:—柏 *finoki* altera (the Chinese character is, evidently by a typographical error, referred to the next plant, *faku*, which is a *Rottlera*). Cupressus vulgaris nostras, foliorum odore balsamico; fructu ut plurimum quina semina, tritici grano similia, continente. This is *Thuja orientalis* according to THUNBERG [*Flora japon.*, 266]. SIEBOLD, *Syn. plant. œcon. jap.*, 63, *Thuja orientalis*, i.q. *hinoki*, 扁柏. Lignum coniferarum longe præstantissimum.

Phon zo, LXXVII, 21, 柏 or 側柏, *Thuja orientalis*.

The character 桧 *kü*, which in the *Rh ya* [225] is given as a synonym of *po*, is found in the *Li ki* [II, 141]:—The mortar for the fragrant herbs, in making sacrificial spirits, was made of cypress wood (*kü*). [*See* the quotation in 408.]

E., 203, family 柏, with bad figure. *Kü* is mentioned as a synonym.

S., IX, 5. *Sm.*, 38.

A., XV, 175, *Cupressus sempervirens*, L. [v. *Sm.*, 82].

Pr., 5, 扁柏, *Biota orientalis*, End. *C.*, 950.

Jap., 2201, *Thuja orientalis*, 側柏.

„ 2197, „ *dolabrata*, L., 羅漢柏.

506.—檜 *Kui*. This tree is once mentioned in the *Shi king* [102] together with the pine. LEGGE calls it cedar, but says that in the Japanese plates it is *Juniperus*. [*See* the quotation in 504, oars of cedar.]

In the *Rh ya* [319] *kui* is explained:—Leaves of the *Thuja*, trunk of the pine.

Li Shi-chen, in *P.* [XXXIV, 2, at the end of the article *po*] gives a short account of the *kui* tree and calls it *sung po*, *Pine Thuja*. He describes it as a tall, straight tree with a thin bark. Its wood is oily (resinous). It has small flowers and fruits like little balls, which after hoar-frost split into four valves and then show a number of seeds of the size of a wheat grain. The tree has a pleasant fragrance. This is the *kui* tree of the *Rh ya*. It is now commonly called 圓柏 *yüan po* (*po* with globular fruits). One variety has pointed (acicular) leaves and is called 桧 *kuai*.

The drawing in *Ch.* [XXXIII, 2] under *kui* or *yüan po* is bad, but it seems that *Juniperus* is intended.

Amœn. exot., 884:—桧 *quai*, vulgo *finoki* et *ibuki*. Cupressus, succo imbuta pingui viscido aromatico, odorem juniperinum spirante, fructu verrucoso parvulo, pisi magnitudinis. According to Siebold & Zuccarini [*Flora japon.*, II, 58, 35] this is *Juniperus chinensis*, L.

In the *Phon zo* [LXXVIII, 2] *J. chinensis* is figured under the Chinese names **桧**, **刺柏** and **桧子松**.

Under the names **刺柏** *ts'z' po* [*H.*, 355] acicular *Thuja*, and **刺松** *ts'z' sung*, acicular pine, *Ch.* [XXXIII, 3] figures a *Juniperus*, probably *J. chinensis*, for *ts'z' sung* at Peking is the popular name of this tree.

The **桧** *kuai* is generally considered by the ancient writers to be the same as the *kui* [see the *Kuang yün Dictionary* and *Rh ya i*]. The *Shuo wen* states that the wood of the *kuai* is used to scorch the tortoise-shell for use in divination.

Shu king, 115 [Tribute of Yü]:—The *kuai* mentioned as growing in the Province of King chou (Hukuang). K'ung Ying-ta says the *kuai* is the same as the *kui*, and Legge translates it by cedar.

It seems to me that the *kui* as well as the *kuai* must be referred to *Juniperus chinensis*, L., a tall, very common tree in the Northern Provinces of China. It is remarkable for the dimorphism of its leaves. They resemble generally those of *J. Sabina* or of the common cypress, *i.e.* they are scale-like and closely appressed. But frequently one or more branches on the same tree show spreading acicular leaves, as in *J. communis*. Sometimes the whole tree has only acicular leaves. These are probably the trees to which the name *kuai* was applied. *See above* LI SHI-CHEN's account of the *kui*, which, however, is not quite correct if he has in view the juniper, the galbuli of which are not dehiscent. *See* regarding the Chinese Juniper tree and its peculiar leaves, DU HALDE, *La Chine*, II, 150, and GROSIER, *La Chine*, II, 326, *le tse song* ou *yuene pi*, arbre cyprès-genévrier.

E., 258, family 檜, without figure.

Jap., 1204, *Juniperus chinensis*, L., 檜 and 檜柏.

„ 1206, „ *rigida*, S. & Z., 杜松.

507.—稷木 *Tsi mu*, a tree mentioned in the *Shan hai king*. KUO P'O says that it resembles the *sung* or pine, is prickly and has a finely veined wood.

As I have not found this term, some other Chinese names of *Coniferæ* may find a place here.

Jap., 4, *Abies firma*, S. & Z., 樅.

„ 552, *Cephalotaxus drupacea*, S. & Z., 粗榧.

„ 1018, *Ginkgo biloba*, L., 公孫樹.

„ 1232, *Larix leptolepis*, Gord., 落葉松.

„ 1669, *Podocarpus macrophylla*, Don., 羅漢松.

„ 1670, „ *Nageia*, R. Br., 竹柏.

„ 2017, *Sciadopytis verticillata*, S. & Z., 金松.

„ 2178, *Taxodium heterophyllum*, Brong., 水松.

508.—梓 *Tsz'*, also written 梓, name of a tree frequently mentioned in the Classics.

Shi king, 81 :—Duke Wan [7th century B.C.] planted about his mansion at Ts'u (楚) *tsz'* trees. 337 :—The mulberry and the *tsz'* must be regarded with reverence.

Li ki. I, 158 :—The coffin of the Son of Heaven is fourfold. The hides of a water buffalo and a rhinoceros, overlapping each other, form the first, three inches in thickness. Then there is a coffin of 杝 *i* wood [*v. infra*, 548] and two of the *Rottlera* (*tsz'*). The four are all complete enclosures. The shell of the coffin is of cypress wood.

Chou li, II, 462 :—Travail des bois de prix (梓). Commentator B. (Cheng Hüan) :—Le bois de prix, aussi 榎 *kia* sert pour faire les vases de cérémonies et les instruments de musique en bois précieux.

Shu king, 413, 梓材 :—"The timber of the *tsz'* tree," title of one of the books of the *Shu king*, which book, however, has nothing to do with the tree.

Mencius said, [291] :—Anybody who wishes to cultivate the *tu'ng* [*v. infra*, 515] or the *tsz'*, which may be grasped with both hands, perhaps with one, knows by what means to nourish them.

In the *Rh ya* [293] the 梓 is the same as 椅 *i*. Kuo P'o says same as 楸 *ts'iu*. But in explaining the *Shan hai king*, where the *tsz'* is repeatedly mentioned, Kuo P'o says it is the *shan ts'iu* or mountain *ts'iu*.

According to the *Shuo wen*, 梓 is the same as 楸 and also the same as 榎 *kia*.

Lu ki :—The *tsz'* is a variety of the *ts'iu* with a white coarsely veined wood, and which bears fruit. Another variety which has the fruit of the *tsz'* and the rind of the *t'ung* [*v. infra*, 515, *Paulownia*] is called 椅 *i* [*v.* 509].

The *Ts'i min yao shu* [5th century] states that the variety with a white bark, and with fruits resembling horns, is called 梓 *tsz'* or 角楸 *kio ts'iu*, horned *ts'iu*. Other ancient authors describe these horns (capsules) as more than a foot

long, and slender ; after the leaves have fallen off, the fruit still hangs on the tree. Compare with this DAVID, *Troisième Voyage dans l'Empire chinois*, I, 247 :—J'observe sur les bords du torrent des *Catalpa* qui conservent encore leurs nombreuses gousses, longues et minces, qui font un effet curieux sur ces arbres éfeuillés [25th January, 1873, Southern Shensi].

The *P'i ya* [11th century] says :—In the same way as the 牡丹 *mou tan* (*Paonia montan*) is called 花王 *hua wang*, (the king of flowers) the *tsz'* is termed 木王 *mu wang* (the king of trees) for there is no other wood which is superior to the wood of the *tsz'*.

The *Rh ya i* [12th century] says :—The *tsz'* yields a valuable timber for house-building. A house built of it is never struck by lightning.

P., XXXV*a*, 20, 梓 *tsz'*. SU SUNG [11th century] says :—The wood of the *tsz'* yields a valuable timber much used for building palaces, temples and houses. It is largely cultivated in gardens. LI SHI-CHEN states :—This tree is very common. There are three varieties of it. That with a white veined wood is the *tsz'*, that with a red wood is 楸 *ts'iu*, that with a beautifully veined wood is 椅 *i*. A smaller variety of the *ts'iu* is called 榎 *kia*. [Compare also the *Rh ya*, 290-292.] These names are frequently confounded by Chinese, and it seems also by Japanese, botanists.

The *Shan hai king* mentions a tree, 檵 *siao*, which, according to KUO P'O, is the same as the *ts'iu*. [See *W.D.*, 794.]

Ch. [XXXIII, 47, under 梓] gives a good drawing of *Catalpa Bungeana*, C. A. Meyer, with flowers and fruits. This beautiful tree is known at Peking under the name of *ts'iu*. It attains considerable dimensions. Its leaves are very variable in size, heart-shaped or triangular, entire or lobed ; they have an unpleasant smell. In May the tree is covered with a profusion of large bell-shaped flowers, white

with purple spots. The capsules are long and slender. A rude picture of the *ts'in*, only leaves, is found in the *Kiu huang* [LVI, 11]. HENRY, *l.c.*, 78, *ts'iu* in Hupei is the *Catalpa Kæmpferi.*

Amæn. exot., 841, 842, 角楸 *kakusju*, vulgo *kawara jisagi*, detailed description and drawing of *Catalpa Kæmpferi*, S. & Z. SIEBOLD, *Icon. ined.*, VI, 楸, *Catalpa Kæmpferi.*

SIEBOLD, *Icon. ined.*, VI, and *Flora japon.*, I, 147, tab. 79. 梓, *Rottlera japonica.* SPRENGEL, *Croton japonicum*, Thbg. [*Flora. japon.*, 270]. Order *Euphorbiaceæ.* The leaves of this shrub, which is found also in China, have some resemblance to the leaves of *Catalpa.* The fruit is a capsule of the size of a cherry. In the *Phon zo* [LXXXII, 23, 24] we have 梓 *Catalpa Kæmpferi*, and [24-25] 楸, *Rottlera japonica.*

The *tsz'* of the Classics is, I have no doubt, *Catalpa*, and most probably the character 榎 *kia*, referred likewise to this tree, has erroneously been identified with 檟 *kia.*

MENCIUS said:—A plantation-keeper who neglects his *ou* [*Sterculia*, *v. infra*, 516] and *kia* (檟) and cultivates his sour wild dates (jujubes, *v. supra*, 484) is a poor plantation-keeper.

TSO CHUAN, 415, 416 [Duke Siang, B.C. 570]:—Muh-keang (Duke Ch'ing's mother) had caused some fine *kia* trees to be chosen, to make for herself a coffin and a lute. 423 [B.C. 568]:—Ke-sun had planted for himself six *kia* trees in the Pu orchard outside the east gate. K'ing asked him for some trees [to make the coffin] and when he gave a half-assent the other used the *kia* trees without Ke-sun's forbidding him. 833 [Duke Gae, 493-467 B.C.]:—Tsz'-seu, when about to die, said:—Plant *kia* trees by my grave. [The *kia* furnished wood for coffins.]

In all the above quotations, *kia* is 檟 in the modern editions of the Classics, but, as has already been noticed [see *supra*, 292],

some Chinese authors assert that this character was anciently written 榎. We may therefore suppose that in the ancient editions of the Classics the latter character was used in the above-quoted passages, and that the *kia* were *Catalpa* trees.

V. supra, 290, 292.

309.—椅 *I*, also written 倚. Name of a tree mentioned in the *Shi king*.

81 :—Duke Wan [7th century B.C.] planted around the mansion at Ts'u (楚) the *i* and other trees. 276 :—From the *t'ung* [*v. infra*, 515, *Paulownia*] and the *i* the fruit hangs down.

The *Rh ya* [293] makes the *i* to be the same as the *tsz'* (*Catalpa*), but the mention of both in the text [81] seems to show that they are different.

Lu ki, after having spoken of the *tsz'*, says that the *i* is a tree which has a fruit like that of the *tsz'* and a bark like the *t'ung* [*v. infra*, 515, *Paulownia*].

510.—桋 *Yü*. *Shi king*, 273 :—On the hills of the north is the *yü*. The *Rh ya* [260] calls this tree 鼠梓 *shu tsz'* (rat's *Catalpa*).

Lu ki :—It is a sort of *ts'iu* (*Catalpa*) ; it resembles that tree in the leaves and in the texture of the wood. Now the people call it 苦楸 *k'u ts'iu* (bitter *Catalpa*). The wood is said to be brittle in wet weather and strong in dry weather. In 永昌 Yung ch'ang it is known under the name of *shu tsz'*. In the Han time it was termed *yü*.

511.—條 *T'iao*. This character properly means a branch, a twig, the *Shuo wen* says a small branch, and in this sense it is used in the *Shi king* [17]. But *t'iao* in ancient times had also other meanings. In the *Rh ya* [236] it denotes the *Pumelo* ; in the *Shan hai king* an herbaceous plant repeatedly mentioned.

In one passage of the *Shi*, *t'iao* is, according to the Chinese commentators, the name of a tree. MAO says, the same as the 楢 *t'ao* in the *Rh ya* [223], which is said there to be the 山榎 *shan kiu* or, as KUO P'O explains, the 山楸 *shan ts'iu*. I cannot understand why MEDHURST, who is followed by LEGGE, asserts that this is a kind of fir distinguished by its white bark. None of the Chinese commentators assign to it this meaning.

Shi king, 197:—On the Chung nan 終南 mountains (south of the old capital Hao in Shensi) there are white firs (*t'iao*).

LU KI:—The *t'iao* is the same as the *t'ao* in the *Rh ya* and is now called 山楸 *shan ts'iu* (mountain *Catalpa*). It resembles the *ts'iu* which grows in the plain, but its bark is white, and the leaves are also white (downy). It affords good timber, boards for carts and coffins.

It is impossible to guess what tree the *shan ts'iu* was. The name *ts'iu* seems to be applied to several trees, the leaves of which resemble those of *Catalpa*. In the *Kiu huang* [LIV, 31] is a rude drawing of the 刺楸 *ts'z' ts'iu* or thorny *ts'iu*, represented with palmate leaves and thorns. [See also *Ch.*, XXXIV, 16.] It is described as a large tree provided with large thorns and *Catalpa* leaves. Its rind is greenish white with yellow spots. This is, according to HENRY [*l.c.*, 79], the *Acanthopanax ricinifolia*, S. & Z., and the same as the *ts'z' ts'iu* tree with a five-pronged leaf observed by PARKER in Szch'uan [*China Review*, X, 160]. It has the same Chinese name in Japan. [*See* the *Kwa wi*, 89.] According to this Japanese work it is a tree of large size.

V. supra, 290. Other *Araliaceæ* are mentioned:—

Jap., 13, *Acanthopanax aculeatum*, Seem., 五加.

„ 199, *Aralia cordata*, Thbg., 土當歸.

„ 200, „ *spinosa*, L., 楤木.

„ 941, *Fatsia japonica*, Dec. & Pl., 金剛纂.

Jap., 1067, *Hedera Helix*, L., **常春籐.**
„ 1074, *Helwingia japonica*, Dietr., **青莢葉.**
„ 1549, *Panax repens*, Max., **土參.**
„ 1550, „ *Ginseng*, C. A. Mey., **人參.**

512.—**柟** *Nan*. Name of a tree repeatedly mentioned in the *Shan hai king*. Kuo P'o says:—A large tree commonly called **楠** *nan*.

In the passage of the *Shi king* [197] where *t'iao* [*see* 511] is mentioned as growing together with the **梅** *mei* in the Chung nan mountains, Lu ki in his commentary takes *mei* as in this place not meaning the plum tree. He thinks that the *Shi* has in view the **柟** *nan*, of which he gives the following account:—The *nan* in its bark and leaves resembles the **豫章** *yü chang* [camphor tree, *c. infra*, 513]. The leaves are as large as an ox-ear, ending in a point and with a red heart. The flowers are of a yellowish red colour, the fruits are green, not eatable. The leaves are clustered three or four together. The wood is more finely veined than that of the *yü chang*. There are varieties of this tree, one with red fruit, the wood of which is tough. Another kind has white fruit, its wood is easily broken. The people of King chou (Hukuang) report that in the districts of **新城** Sin ch'eng and **上庸** Shang yung (which correspond to ancient Chung nan) there are plenty of *chang* (camphor trees) and *nan* trees. The *Rh ya* [227] gives the above character *nan* as a synonym for *mei*.

The *nan* tree here spoken of (the character is more commonly written **楠** *nan*) is a large tree which nowadays is found in the Province of Sz'ch'uan, and affords the highly esteemed *nan mu*, a tough, incorruptible wood, much used for buildings and furniture.

It is mentioned by Sz ma Siang ju [*c. infra*, 514]. Li Shi-chen, in *P.* [XXXIV, 37] describes it as a tree of enormous size growing in the Province of Sz'ch'uan, with fruit resem-

bling the 丁香 *ting hiang* (clove). This interesting tree has been determined by Prof. OLIVER of Kew, from specimens received from Sz'ch'uan. It is the *Persea nanmu* of the Laurel order. [*See* HOOKER, *Icon. plant.*, IV, 1880, p. 10, tab. 1316. HENRY, *l.c.*, 303.] In Japan, where the Chinese *nan mu* is not found, the name 南木 is applied to another *Lauracea*, the *Machilus Thunbergii*, S. & Z. (*Laurus indica*, Thbg.). [*See* the *Phon zo*, LXXXI, 7, 8].

According to *Index Fl. Sin.*, Vol. II, p. 376, it is *Machilus Nanmu*, Hemsl.

V. supra, 227. Of *Laurineæ* are mentioned :—

Jap., 53, *Actinodaphne lancifolia*, Meisn., 六駁.

„ 599, *Cinnamomum Camphora*, Nees, 樟.

„ 600, „ „ *Loureirii*, Nees, 桂.

„ 758, *Daphnidium strychnifolium*, S. & Z., 天台烏藥.

„ 1286, *Lindera glauca*, Bl., 山胡椒.

„ 1289, „ *sericea*, Bl., 鈎樟.

513.—豫章 *Yü chang*, name of a tree, or more probably of two trees [*see further on*] which are repeatedly mentioned in the *Shan hai king*. The second character is there sometimes written 樟 *chang*, which now is the common name for the camphor tree, *Laurus Camphora*, L. KUO P'O explains *yü chang* by a great tree resembling the *ts'iu* (*Catalpa*) and having evergreen leaves; can only be distinguished after seven years [see farther on the meaning of this statement].

W.D. [23] says that Yü chang is the ancient classic name for the Province of Kiangsi, and that the present name for the camphor tree is derived from it. I may observe that the name Yü chang in this sense is not met with in the Classics, so far as I know. It appears first in the History of the Earlier Han, in the 2nd century B.C., as the name of a department comprising a great part of present Kiangsi.

But *yü chang* for camphor-tree occurs in the *Tso chuan* [847], referring to the year B.C. 477 :—He tore up a large log of a camphor-wood tree, killed a man, and died.

P., XXXIV, 38, 樟 *chang*. (ʻH'EN TS'ANG-K'I, an author of the first half of the 8th century, says that the camphor tree is called *chang* from the district of Yü chang, which abounds in these trees. The *yü chang* is mentioned by SZ' MA SIANG-JU [second century B.C.]. [*See* quotation in 514]. It appears from the quotations found in *K.K.F.P.* [LXXII. 12] under *yü chang*, that in ancient times this term probably referred to the camphor tree. The *Shi i ki* [4th century] says that the *yü chang* was used for ship-building. The *Shu i ki* [6th century] relates that the Emperor HAN WU-TI [B.C. 140–86] built a palace of *yü chang* wood. But YEN SHI-KU [7th century], quoted in *K.D.*, states that by *yü chang* properly two trees are to be understood which greatly resemble each other and can only be distinguished when seven years old; the *chang* is the true camphor tree. The *yü* is referred in *P.* [*l.c.*, 39] to another *Lauracea*, called also **釣樟** *tiao chang* (hook camphor tree) and **烏樟** *wu chang* (black camphor tree). It is supposed that the **楠** *lan* of the *Rh ya* [248] is this tree.

Laurus camphora is a common tree in Middle and Southern China. It abounds especially in the Province of Kiangsi and in Formosa. It is likewise plentiful in Japan. A good drawing of the tree is found in *Ch.* [XXXIII. 61].

Amœn. exot., 770, 樟, *Laurus camphorifera, sio* vulgo *kusnoki*. With figure.

SIEBOLD, *Syn. plant. œcon. jap.*, 137. *Phon zo* [LXXXI, 8, 9], 樟, *Laurus camphora*, and 10, 11, **釣樟** *Lindera sericea*, Blume.

E., 259, family **樟**, with figure of a tree.

514.—There is in *K.D.* a quotation from one of the poems of SZ' MA SIANG-JU [† 126 B.C.] in which he mentions several trees of the Laurel order, viz., **楩** *p'ien*, **楠** *nan* [*see* 512], **豫** *yü*, **章** *chang* [*see* 513]. The commentary says:—Large trees of Southern China. The dictionary *Yü pien*

[6th century] says that the *p'ien* resembles the *yü chang*. [See also *W.D.*, 690, and the *Rh ya*, 248.]

515.—桐 *T'ung*. This tree is frequently mentioned in the Classics. LEGGE calls it erroneously *Elaeocarpus*, *Dryandra*.

Shi king, 81 :—Duke Wan [7th century B.C.] planted the *t'ung* together with other trees about the mansion at 楚 Ts'u. They furnished materials for lutes. A commentator says that the best lutes are those of which the upper part is made of *t'ung* wood, and the bottom of that of the *tsz'* (*Catalpa*. v. *supra*, 508). 276 :—From the *t'ung* and the *i* [509] the fruit hangs down.

Shu king, 104 [Tribute of Yü] :—Province of 徐州 Sü chou (Northern Kiangsu and Anhui). The solitary *Dryandra* (孤桐) from the south of Mount 嶧 Yih. The commentary says that the *t'ung* is considered good for making lutes. The older and loftier the tree, the better for the purpose. A solitary tree on the hill side or top, having outlived all its compeers, would possess a special value.

MENCIUS, 291 :—[*See* the quotation in 508.]

Hia Calendar, 49 :—Third month. 拂桐芭. An obscure phrase which DOUGLAS translates :—Wave to and fro the *Aleurites cordata's* cylindrical flowers. BIOT :—Otez les fleurs de l'arbre *thoung*.

Li ki, I, 262 [*Yüe ling*] :—Last month of spring. The *Elaeocarpus* (*t'ung*) begins to flower. II, 40 ["Mourning Rites"]:—Staffs of bamboo and *Elaeocarpus* (*t'ung*).

The *t'ung* tree is frequently mentioned in the *Shan hai king*.

Rh ya, 309, *t'ung* tree, also 桵 *yung*. KUO P'O refers this erroneously to *wu t'ung* (*Sterculia*). Not this but the tree mentioned in the *Rh ya* [283] is *wu tung*.

LU KI :—There are many sorts of *t'ung* : the 青桐 *ts'ing t'ung* (green *t'ung*), the 白桐 *pai* or white *t'ung*, the 赤桐 *ch'i* or red *t'ung*, the 梧桐 *wu t'ung*. The wood of the white

is good for making lutes. Now the people of 牂牁 Tsang ko (a part of Sz'ch'uan, Kuichou, etc) and Yünnan spin thread from a *t'ung* tree and make a kind of cloth which resembles woollen cloth. [This refers to *Sterculia*, v. *infra*, 516.]

P.. XXXV*a*. 23, 桐 *t'ung* also 白桐 white *t'ung* or 泡桐 *pao t'ung*. Li Shi-chen, who correctly refers the *Rh ya* [309] to this, gives the following description of the *t'ung* tree :—It has very large leaves, variable in shape. Its rind is of a dirty white colour. Its wood is light, never injured by insects. It is used in making various utensils, and is also excellent for pillars in building houses. It opens its flowers in the second month ; they resemble the flowers of the 牽牛 *k'ien niu* (*Pharbitis*), are white or of a purple colour. The fruit is more than an inch long, as large as a jujube. Within the capsule are the seeds. These are light, flattened, winged like the seeds of the elm tree. When ripe the fruit bursts, and then the seeds are carried off by the wind.

The *t'ung* tree is figured in *Ch.* [XXXIII. 46]. Cordate leaves, ovoid acuminate fruit. According to Henry [*l.c.*, 490] this is the *Paulownia imperialis*, S. & Z., called *pao t'ung* in Hupei. It is a common tree in the middle part of China. [*See* David, *Troisième Voyage dans l'Empire chinois*, I. 22, 65, 94, 275 ; II. 69]. The above Chinese description of the *t'ung* agrees with *Paulownia*. I have no doubt this was the *t'ung* mentioned in the Classics, the wood of which was used for making lutes.

Amœn. exot., 860, 861, 桐 *too*, vulgo *kiri*. Althæa arbor dipyrena, flore digitalis æmulo. Arbor satis vasta, cortice pingui, glabro, glauco . . . . ligno levissimo, firmo tamen et a scriniariis pro fabricandis capsulis expetito : medulla albissima, etc. Detailed description and a good drawing. This is the *Bignonia tomentosa* of Thunberg or *Paulownia imperialis*, S. & Z. [*Flora. japon.*, I, 27, tab. 10.]

SIEBOLD, *Syn. plant. œcon. jap.*, 184 :—*Bignonia tomentosa. Kiri*, 桐 ; Lignum omnium lævissimum, ad diversa adhibetur utensilia. [*See also* the *Phon zo*, LXXXIII, 1, 2.]

The *Dryandra* or *Elæocrea*, to which LEGGE refers the *t'ung* of the Classics, is indeed also a *t'ung*, but the Chinese authors distinguish it well from the *Paulownia* in terming it 罌子桐 *ying tsz' t'ung* (*ying* is a jar, and allusion is made to the shape of the fruit) or 油桐 *yu t'ung* (oil-yielding *t'ung*). [*See* the drawing in *Ch.*, XXXV, 26.] This is the *Dryandra cordata*, Thunberg [*Flora japon.*, 267] or *Elæococca verrucosa*, S. & Z. A valuable oil (*t'ung yu*) expressed from the large poisonous seeds is much used for painting and caulking. The tree is extensively cultivated in the Yang-tsz' valley. It is also well known in Japan.

SIEBOLD, *Syn. plant. œcon. jap.*, 181, *Elæococca cordata*: *Aburagiri*, 罌子桐. Exprimitur oleum e seminibus. [*Phon zo*, LXXXIII, 6, 7.]

E., 237, family 桐 [*v. supra*, 283], 梧桐 is given as a synonym. The figures to *P.* [XXXV, 23] distinguish between *Paulownia* and *Sterculia*. *Sm.*, 168. *Jap.*, 1577, 白桐.

Jap., 846, *Elæococca cordata*, Bl., or *Elœurites cordata*, DC., 罌子桐.

Sm., 125, 233, 桐油, from *Elæococca* and *Jatropha*. (The latter in Kuangtung). *C.*, 357, 海桐皮, and 1402, 桐皮. That exported from Ningpo is probably the bark of *Acanthopanax ricinifolium*, Seem., that from Canton, the bark of the cotton tree, *Bombax malabaricum*, DC.

516.—梧 *Wu* or 梧桐 *wu t'ung*. LEGGE calls it *Dryandra*, but *wu t'ung* is still the common Chinese name for *Sterculia platanifolia*, L., a beautiful tree found in all the provinces of China.

Shi king, 494 :—The *wu t'ung* grow luxuriantly on the eastern slopes.

MENCIUS, 292 :—[*See* the quotation in 484.]

Li ki, II, 141 :—A pestle of *Dryandra* (*wu*). [*See* the quotation in 408.]

Rh ya, 283, *wu* or *chen*.

Lu ki :—[*See* his account of the *t'ung* trees, translated in 515.] The statement that cloth can be made of the bark refers to *Sterculia*. Henry, *l.c.*, 492 :—Strings made of the young stems of *Sterculia platanifolia*.

P., XXXV*a*, 25, *wu t'ung*. *Ch.* [XXXV, 56] well represents, under *wu t'ung*, *Sterculia*.

Phon zo, LXXXIII, 5, 6, 梧桐, *Sterculia platanifolia*.

517.—漆 *Ts'i*, varnish or lacquer, the sap of *Rhus vernicifera*, L., which in China and Japan is collected for lacquer ware, is repeatedly mentioned in the Classics.

Li ki, I, 265 [*Yüe ling*]:—Last month of spring. Orders are given to the chiefs of works to inspect the materials in the five store-houses. Varnish (*ts'i*) mentioned. II, 196 :—The lid of a ruler's coffin was varnished (用漆).

Chou li, II, 469 :—Vernis (*ts'i*) employé pour la fabrication des roues, des ares, etc. II, 269 :—The Province of 豫州 Yü chou (Honan) produces varnish.

Shu king, 99, 117 [Tribute of Yü]:—The Provinces of Yü chou (Honan) and 兗州 Yen chou (Western Shantung) produce varnish.

Shi king, 81 :—Varnish trees planted by Duke Wan [7th century B.C.] about the mansion at Ts'u (楚). 177. 190 :—Varnish trees.

The *ts'i* tree is frequently mentioned in the *Shan hai king*. Kuo P'o explains that it resembles the *ch'u* [*Ailantus*, see 518].

P., XXXV*a*, 17, *ts'i*. *Ch.*, XXXIII, 22.

Amœn. exot., 791, 792, with figure. 漆 *s'tz.* vulgo *arus*. Arbor vernicifera. Siebold, *Syn. plant. œcon. jap.*, 258.

Phon zo, LXXXII, 21, 22.

E., 257, family 漆. Figure a copy of *S.*, IX, 9, a *Rhus*.

Jap., 1898, *Rhus vernicifera*, DC., 漆.

„ 1893, „ *semialata*, Murr., var. *Osbeckii*, DC., 鹽膚木.

„ 1895, „ *succedanea*, L., 櫨.

„ 1896, „ *toxicodendron*, L., var. *radicans*, Miq., 野葛.

518.—樗 *Ch'u*. LEGGE correctly calls this tree the fetid tree, but refers it wrongly to the order *Sterculiaceæ*. It is the *Ailantus glandulosa*, Desf. Order *Simarubeæ*.

Shi king, 231 ["Life in Pin"]:—In the ninth month they make firewood of the fetid tree (*ch'u*). 302:—I travelled through the country where the fetid tree grew luxuriantly.

MAO explains *ch'u* by 惡木 (bad wood). K'UNG YING-TA says it is called a bad tree because it is good only for fuel.

The *ch'u* is repeatedly mentioned in the *Shan hai king*. The *Shuo wen* says the name is also written 樗.

LU KI:—The bark of the *ch'u* tree contains varnish and is of a green colour. Its leaves have a fetid smell.

P. [XXXV*a*, 12] describes the *ch'u* together with the 椿 *ch'un*, which is the *Cedrela sinensis* [*c. infra*, 520]. LI SHI-CHEN says:—The fragrant kind is called *ch'un*, the fetid is *ch'u*. SU KUNG [7th century] states that the *ch'un* and the *ch'u* much resemble each other in their appearance, only the wood of the *ch'u* is of a loose texture, while that of the *ch'un* is firm and tough. SU SUNG [11th century] says:—These two trees are common both in the northern and in the southern provinces. The *ch'un* has fragrant leaves which can be eaten, while the leaves of the *ch'u* have an offensive smell. The people of Kiang tung call this latter 鬼目 *kui mu* (imp's eyes) or 虎眼桐 *hu yen t'ung* (tiger eyes *t'ung*). LI SHI-CHEN explains that these latter names refer to certain dots found at the base of the leaves (leaflets).

Ch., XXXV, 3, *ch'u* or 臭椿 *ch'ou ch'un* (stinking *ch'un*). A good drawing of *Ailantus glandulosa*, leaves and fruit.

This is a very common tree in Northern China. Its common name at Peking is *ch'ou ch'un*. It has the same name in Hupei [HENRY, *l.c.*, 85]. Disagreeable odour of the leaves and the flowers, whence the name. The leaves of the *Ailantus* (large pinnate, from one to two feet long) are very similar to those of the Chinese *Cedrela*, a tree likewise common in the neighbourhood of Peking. But on closer examination the leaves of the *Ailantus* are easily distinguished by the two little glands near the basis of each leaflet, to which the species name "glandulosa" refers. The *Ailantus* grows very easily and rapidly, and its wood is used only for fuel, as it was in the classical period. It is well known also in Europe.

Ailantus glandulosa does not occur in Japan. Japanese botanists apply the Chinese name 椿 to *Euscaphis staphyleoides*, S. & Z., *Flora japon.*, I, 124, tab. 67. (*Sambucus japonica*, Thbg., *Ailantus japonica*, Bl.), a shrub of the order *Staphyleaceæ* found also in China. [*See* HOFFM. & SCHULTES, 237, *Kwei wei*, 92.] KEMPFER [*Amæn. exot.*, 895] applies the above Chinese character, evidently by a mistake, to *kioh* or *dara*, which is *Acanthopanax spinosum*, Miq.

E., 253, family 樗. Figure the same as to family 椿.
S., VIII, 8, the two words combined 椿樗, but two figures.
Jap., 74, *Ailantus glandulosa*, Desf., 樗.
„ 930, *Euscaphis staphyleoides*, S. & Z., 野鴉椿.

519.—栲 *K'ao*. The *Shuo wen* writes 槁. A tree mentioned in the *Shi king* [176, 273].

The *Rh ya* [224] calls the *k'ao* the 山樗 *shan* or mountain *ch'u*.

LU KI:—The mountain *ch'u* does not differ considerably from the *ch'u* which grows in the plain, only its leaves are narrower. The people of 吳 Wu (northern part of Chekiang) gather its leaves and use them for tea. But in another

passage LU KI says that the *k'ao* [he does not say that the *kao* and the *shan ch'u* are the same] has leaves resembling those of the 樂 *li* [an oak, *c. infra*, 534], whence it is also called *k'ao li*. The bark of the tree is several inches thick. The wood is used for making wheel-spokes.

WILLIAMS [*Dict.*, 327] is of opinion that the *k'ao* may be a kind of *Rhus*.

A synonym of 椿 [*v.* 520].

520.—杶 *Ch'un*. This tree is noticed in the *Shu king* [112. "Tribute of Yü"] as growing in the Province of 荊州 King chou (Hukuang).

K'UNG AN-KUO says that another name for it is 櫄 *ch'un*. This latter appears in the *Shan hai king*. KUO P'O explains that it resembles the *ch'u* (518, *Ailantus*) and is well known to the people of 吳 Wu (Chekiang). The wood is good for making thills of carriages.

According to the *Shuo wen* the name is also written 橁 *ch'un*.

In *P.* [XXXV*a*, 12] this tree is spoken of under the name of 椿 *ch'un* [*v. supra*, 518] which is also an ancient designation, for it appears in the works of CHUANG TSZ' [4th century B.C.] as the name of a long-lived tree. As has already been stated, this is the *Cedrela sinensis*, A. Juss., (*Meliaceæ*), a common tree at Peking, where it is more commonly known under the name of 香椿 *hiang ch'un* (fragrant *ch'un*). Its fragrant leaf-buds in spring are used by the Chinese for food. *See* the drawings in *Ch.* [XXXV, 2] and the *Kin huang* [LIV, 6].

Phon zo, LXXXII, 17, 18, 椿 *Cedrela sinensis*.

E., 253, family 椿. Figure, *v. supra*, 518.

Jap., 541, *Cedrela sinensis*, Juss., 椿.

521.—楚 *Ch'u* (*ts'u*) and 荊 *king*. These two characters appear in the Classics as names of a plant (shrub) and have, according to the ancient commentators, the same meaning.

Originally *king* was the name of one of the nine provinces into which China was divided in the time of Emperor Yü. This province comprised the present Hupei and the greater part of Hunan, and subsequently became a large feudal state called King and afterwards Ts'u or Ch'u. The *Shi king* calls it King Ts'u.

楚 *Ch'u*, according to the *Shuo wen*, has the meaning 叢木 (trees thickly crowded) and in this sense it is used in the *Shi king* [368]. But sometimes in the *Shi* it denotes also a distinct plant. LEGGE says:—A species of thorn tree employed for fuel.

Shi king, 16:—Many are the bundles of firewood; I would cut down the thorns (*ch'u*) to form more. 115, 145:—A bundle of thorns (*ch'u*). 180:—Round and round the thorns (*ch'u*) are bound.

MAO says that the *ch'u* is a tree. Other commentators say it is a kind of 荊 *king*, and the *Shuo wen* explains *king* by *ch'u* tree. The name *king* occurs frequently in the *Shan hai king* and generally coupled with 杞 *ki* (*Lycium*).

Chou li, II, 581:—The *king* wood used for making bows. [*See* the quotation in 501, note.]

Li ki, II, 84 ["Teaching in the great College"]:—The canes and the thorns were there to secure in the pupils a proper awe. What LEGGE translates by "canes and thorns" is 夏 and 荊 *king* in the Chinese text. Regarding the first character the commentary refers to the *Rh ya* [223], suggesting that it stands for 楔夏 *hia* (*Catalpa*, v. *supra*, 508). With respect to the *king*, a passage of the *Shu king* is quoted [38, 39] where the five inflictions introduced by the Emperor SHUN are recorded. 作教刑, the stick (*king*) to be employed in schools.

TSO CHUAN, 526, referring to the year B.C. 545:—They spread some *king* (荊) branches on the ground and ate

together. This passage seems to imply that the *king* was not a thorny plant, as LEGGE states.

At Peking the names 荆子 *king tsz'* or 荆條 *king t'iao* are applied to *Vitex incisa*, Lam., a very common shrub in the neighbourhood of Peking; and the plant figured under *king tsz'* in the *Kin huang* [LV, 4] is without doubt the same *Vitex*. *V. incisa* is extensively employed in basket making, and the name *king t'iao* (*king* twigs) refers to this use. It is also used for fuel and for burning charcoal. It is a handsome shrub; in the plain the stem is generally not thicker than the little finger, but in the mountains, when allowed to grow, it becomes a tree. I have seen trees of *V. incisa* the trunk as thick as one's arm. It has no thorns. The leaves are compound, generally five leaflets deeply toothed. The leaves have a strong smell of *Artemisia*. It flowers in August; small blue flowers in branched panicles. It is well represented in *Ch.* [XXXIII, 27].

P. [XXXVI, 56–62] describes under the name of *king* several species of *Vitex* and also other plants. LI SHI-CHEN states that the names *king* and *ch'u* (for *Vitex*) are derived from the names of the ancient State in which these plants grew abundantly. The character 荆 *king* is said to have originated from 刑 *king* (punishment), for in ancient times *king* staves were used in corporal punishment.

P. speaks first of the 牡荆 *mou king* (male *king*), also called 黃荆 *huang king* (yellow *king*), the *ch'u* or *king* of the Classics. It grows abundantly everywhere in the mountains. The people cut it and use it for fuel. If not cut for many years it becomes a tree of considerable size. The heart of the wood is square. The branches grow bushy. The leaves are compound; five, sometimes seven, leaflets are inserted upon a common leaf-stalk. The leaflets are long and pointed with the margin serrate and toothed. The leaves

are fragrant. In the 5th month it produces violet flowers in panicles. The seed is as large as that of *Coriander*. This description agrees with *Vitex*. Another sort of *king* is described under the name of 蔓荊 *man king*. The first character means a creeper. LI SHI-CHEN observes that this is an improper name, as the plant does not creep; it has only a weak stem.

According to HENRY [*l.c.*, 132] 黃荊 in Hupei is *Vitex Negundo*, L.

Phen ts'ao, LXXXIX, 15, 16, 牡荊, *Vitex cannabifolia*: S. & Z., *Ibidem*, 17, 18. 蔓荊, *Vitex trifolia*, L. SIEBOLD, *Icon. ined.*, VI, 蔓荊. *V. orata*, Thbg., (same as *V. trifolia*).

MORRISON, WILLIAMS and LEGGE all agree in stating that the *ch'u* or *king* is a thorny bush, and LEGGE even translates *ch'u* by thorns. I have not been able to make out to what Chinese sources of information they refer. The Chinese commentators on the Classics do not speak of the *ch'u* as of a thorny shrub, nor does *K.D.* under *ch'u* and *king* give this meaning. The *ch'u* is without doubt *Vitex*, and all the species of this genus are unarmed. I suspect that this misapprehension arose from an incorrect interpretation of the term 荊 棘, which is of frequent occurrence in ancient Chinese writings. It means, according to *W.D.* [403] thorny, useless. The character 棘 *ki* [*see* 485] denotes, indeed, a thorny shrub, the wild jujube, which in the Peking mountains frequently grows together with *Vitex*. *See* the quotation from the *Tso chuan* [485] where LEGGE translates "briars and thorns." In the *Huai nan tsz'* we find the term 棘楚.

E., 270, family 荊, with good figure of *Vitex Negundo*, L.

The eight synonyms include also 紫荊, *Cercis chinensis*, Bge., of which a good figure is given in *P*, XXXVI. [*V. supra*, 356.] The compilers of *E.* betray in many places their total absence of observation of nature, to say nothing of scientific research.

S., IX, 12. *C.*, 819. *A.*, XV, 166.

Sm., 227, *Vitex incisa*, Lam., is also right.

B., *Caragana flava*, for 黃荆, is doubtful [v. *H.*, 132].
Jap., 2365, *Vitex cannabifolia*, S. & Z., (*Negundo*, L.), 牡荆.
„ 2366, „ *trifolia*, L , var. *unifoliolata*, Schauer, 蔓荆.

A few other *Verbenaceæ* are mentioned :—
Jap., 416, *Callicarpa japonica*, Thbg , 紫珠.
„ 417, „ *mollis*, S. & Z., 白棠子樹.
„ 627, *Clerodendron divaricatum*, S. & Z., 藨.
„ 628, „ *squamatum*, Vahl., 赬桐.
„ 629, „ *trichotomum*, Thbg., 海州常山.
„ 1761, *Premna japonica*, Miq., 腐婢.
„ 2289, *Verbena officinalis*, L., 馬鞭草.

522.—蓍 *Chui*. Name of a tree or shrub, the wood of which was used in divination by the tortoise-shell, to place fire on the shell.

Chou li, II, 77 ; I, 410 :—Le préposé au bois de *tchoui* est chargé de préparer le combustible et l'outil qui sert à graver, pour les cérémonies d'auguration. Commentator B. (Cheng Hüan) :—Les fagots allumés sont posés à l'orient de la tortue. Ces fagots sont fait avec un bois particulier. Pour brûler et éclairer on se sert du bois de l'arbre 荆 *king*, espèce analogue au *tchoui* (用荆蓍之類, which does not imply that the *chui* was akin to the *king*).

523.—楊 *Yang*. I do not agree with Legge that the *yang* in the *Shi* is the willow. It is the poplar, and the willow is *liu* in the *Shi*, as nowadays.

Shi king, 191 :—On the low, wet grounds are willows (*yang*). 209 :—On the willows (*yang*) at the east gate the leaves are luxuriant. 272 :—Willows (*yang*). 280 :—It floats about the willow (*yang*) boat, now sinking, now rising. 404 :—It floats about the willow boat, fastened by the band of the rope. 390 :—Willow (*yang*) gardens.

The *yang* is mentioned in the *Shan hai king*.

Hia Calendar, 39 :—Third month. 莠楊. DOUGLAS translates:—Droop the willows. But the first character stands probably for 秀, and I understand this sentence to mean: the poplars are in seed.

There are in the environs of Peking two poplars, both very common trees. One of them, the *Populus alba*, L., is a tall tree with large, roundish leaves inserted upon long, slender foot-stalks; they produce a rustling noise, like *P. tremula*. The Chinese call it 白楊 *pai yang* (white poplar) or 大葉楊 *ta ye yang* (poplar with large leaves). In Hupei *pai yang* is *P. tremula*, L. [*see* HENRY, *l.c.*, 543]. The other Peking poplar; *P. suaveolens*, Fischer, does not attain the height of the white poplar; its leaves are also smaller, oblong, pointed. This is the 小葉楊 *siao ye yang* (small leaved poplar), called also 青楊 *ts'ing yang* or green poplar. Both are correctly described and depicted in *Ch.* [XXXV, 4, 5] only the names in the two plates have been confounded.

P., XXXV*b*, 27, *pai yang*. The *Ku kin chu* [4th century] defines the differences between the Chinese poplars and the willow, stating that the *pai yang* has round leaves, the *ts'ing yang* oblong leaves, and the *liu* or willow long narrow leaves.

Another ancient work, quoted in *P.*, says, regarding the white poplar, that its leaves quiver even when the air is still, producing a noise like heavy rain.

Phon zo, LXXXIV, 22. 白楊, *Populus tremula*.

V. supra, 252.

524.—The 柳 *liu* of the Classics is the willow, and especially *Salix babylonica*, L., a Chinese tree in common cultivation all over the empire. At least the Chinese nowadays by *liu* always understand this tree. LEGGE means that *liu* was the drooping willow; but although in Europe *S. babylonica* is called the weeping or drooping willow—for the European tree always represents the form with drooping branches—the

Babylonian willow in China has generally upright branches. The weeping willow is seldom seen in the north of China: the drooping of the branches is produced artificially. In the south it seems to be more frequent. At Peking they call it 垂楊柳 *ch'ui yang liu* (drooping willow).

Shi king, 155:—You fence your garden with branches of willow (*liu*). 337:—Luxuriant grow those willows (*liu*). 408:—There is a luxuriant willow tree (*liu*). Who would not wish to take shelter under it? 261:—When we set out, the willows were fresh and green. The Chinese text has 楊柳 *yang liu*.

Hia Calendar:—First month. The willow trees (*liu*) bud. The *liu* is mentioned in the *Shan hai king*.

Chou li, II, 194:—Fire from the willow wood. [*See* quotation in 528, note. *See also* 550:—Willow trees about graves.] Mao explains *liu* by wood that has little strength: the *Shuo wen* writes 柳 *liu*, and explains the character by 小楊 (small poplar).

P., XXXV*b*, 21, 柳 *liu*, also 楊柳 *yang liu*. Su Kung [7th century] says the *liu* has long, narrow leaves. Ch'en Ts'ang-k'i [8th century] states that the people of Kiangtung call the *liu* "*yang liu*." Li Shi-chen observes that the branches of the *yang* (poplar) are tough and erect, those of the *liu*, weak and bent down.

Ch., XXXIII, 48, *liu*, *Salix babylonica*.

Henry, *l.c.*, 540, *yang liu*. At Ichang the name given to several species of *Salix*.

Amœn. exot., 908:—柳 *ryu*, vulgo *anjaki*, idem *sidare janagi*, i.e., *imbecillis janagi*. Salici affinis arbor. Thunberg refers this to *Salix japonica*. Siebold [*Syn. plant. æcon. jap.* 144] *Salix japonica*, *itojanagi*, 柳. *Phon zo*, LXXXIV, 13, 14, 柳, *Salix babylonica*.

V. supra, 238.

S., VIII, 6. *C.*, 741, 746. *Sm.*, 231. *Jap.* 1964.

525.—蒲柳 *P'u liu*, reed-mace willow, is a kind of willow mentioned in ancient Chinese writings. The commentators on the Classics (CHENG HÜAN and others) are of opinion that the character 蒲, generally denoting the reed-mace, is in one passage of the *Shi king* to be referred to the *p'u liu*. LEGGE translates it [115]:—The fretted waters do not carry on their current a bundle of "osiers" (*p'u*). In the same sense *p'u* is interpreted in the *Tso ch'uan* [314, 320]:—Will it be possible to exhaust the willows (*p'u*) in the Tung marsh? According to the *Rh ya* [252] *p'u liu* is a synonym for *yang* (poplar), but the commentators do not accept this view.

LU KI says, regarding the *p'u liu*:—There are two kinds. That with a green bark is called 小楊 *siao yang* (the willow, *liu*, according to the *Shuo wen*); the other, with a white bark, is 大楊 *ta yang* (the great *yang*, or poplar). The leaves (of the former) are long, like those of the *liu* or willow. Arrow shafts can be made of the *p'u liu*, as is alluded to in the *Tso chuan* [*see* the quotation above]. Now the people employ it for making sieves and buckets.

The *Ku kin chu* [4th century] states that the *p'u liu* grows along the edge of the water. It has long leaves, like those of the 青楊 *ts'ing yang* [*v. supra*, 523]. It is also called 蒲楊 *p'u yang*, 水楊 *shui yang*, water-poplar. It has weak, pliable branches, which are much used by the people for making baskets, etc.

P. [XXXV*b*, 26] speaks of this willow under the name of *shui yang*. *Ch.*, XXXV, 7, *shui yang*, *Salix*.

SIEBOLD, *Syn. plant. æcon. jap.*, 146, *Salix kuwajanagi*, 水楊; *Phon zo*, LXXXIV, 19, 20.

Jap., 1971, *Salix purpurea*, L., 楊. *E.*, 268, family 楊, with figure of 水楊; *p'u liu* is a synonym.

526.—The character 杞 *k'i*, frequently met with in the *Shi*, has there, according to the Chinese commentators, two different meanings.

1.—The name is applied to a kind of willow :—

Shi king, 125 :—Do not come leaping into my hamlet. do not break my willow tree (*k'i*). *K'i* has the same meaning in 276.

Lu ki, who interprets *k'i* in the above passages to mean a willow, says the 杞柳 *k'i liu* grows by the waterside like the willow. Its leaves are coarse and white (downy). Its wood is finely veined and of a reddish colour, it is fit for making wheel-naves. Now the people take its twigs and, after rendering them pliable by fire, use them for making trunks. It grows best on the 淇 K'i river (a tributary of the Wei in the north-east of Honan), also in the kingdom of Lu near the T'ai mountain, on the river 汶 Wen (in Shantung).

Mencius, 270 :—The philosopher Kao said :—Man's nature is like the *k'i* willow (*k'i liu*), and righteousness is like a cup or a bowl. *K'i* and *liu* are taken by some as two trees, but more generally the commentators take them together.

2.—The other and principal meaning of *k'i* in the *Shi* is that of 枸杞 *kou k'i*, a name erroneously rendered in W. H. [347] by *Berberis Lycium*, and referred to the medlar by Legge. The *kou k'i* is *Lycium chinense*, Mill., the Chinese box-thorn.

Shi king, 248 :—The doves on the bushy medlars (*k'i*). 266 :—I ascended the hill in the north to gather the medlars (*k'i*). 272 :—On the hills of the south are medlars (*k'i*). 360 :—I ascend that northern hill and gather the medlar. 359 :—Medlars in the marshes.

In the *Rh ya* [257] 枸檵 *kou ki* is given as a synonym of *k'i*. The *Shuo wen* writes 枸杞, as the name is now written.

Lu ki :—The *k'i* is a tree which resembles the *ch'u* (*Ailantus*, *see* 518). It is also called 苦杞 *k'u k'i* (bitter *k'i*) and 地骨 *ti ku*. In spring it affords a savoury food (the

leaves) : it is somewhat bitter. In its stem it resembles the 莓 *mei* (raspberry). The fruit ripens in autumn and then becomes red. Leaves, stem and fruit have medical virtues.

P., XXXVI, 47, *kou k'i*. Many synonyms given. The *Pie lu* [5th century] calls it 羊乳 *yang ju* (goat's teat), from the shape of the fruit. Su Sung [11th century] says that the *kou k'i* is a common plant. The young leaves, when they first appear in spring, are like those of the pomegranate tree, but softer and thinner. They are eaten, and known by the name of *t'ien ts'ai* (sweet vegetable). The plant grows in a bushy manner to the height of three or four feet. In the 6th or 7th month it puts forth small purplish flowers and afterwards produces a red, oblong fruit like a jujube. Its root is called 地骨 *ti ku* (earth bone). Other ancient authors say that the *kou k'i* is provided with thorns, but they are wanting when it grows high. The fruit also varies in shape, being sometimes globular.

Li Shi-chen states that the best sorts of *kou k'i* are found in the Provinces of Shensi and Kansu, where it grows to the height of a tree. The fruit, which resembles a cherry, is dried. It tastes like the grape. The fruit and root are used as medicines.

The plants figured in the *Kin huang* [LVI, 1] and *Ch.* [XXXIII, 25] under *kou k'i* are *Lycium*. What I received under the same Chinese name from the Belgian missionaries in the Ordos were the dried berries of a *Lycium*. Kreitner states [in the *Oestr. Monatsschr. f. d. Orient*, 1883, p. 73–76] that in Kansu the red berries of a wild-growing shrub are dried and exported to all the provinces of China under the name of *kou chi*. They are said to have an intoxicating effect. Several species of *Lycium* have been gathered in those regions by Russian travellers (Prezewalsky, Piassetsky, Potanin), *L. chinense*, *L. turcomanicum*, *L. ruthenicum*,

L. chinense is a common plant in Northern China as well as in the South. At Peking it is a rambling shrub (never arborescent), sometimes twining, with long, weak recurved or pendulous branches, armed with short spines. Leaves lanceolate, oblong. Violet flowers in the axils of the leaves. The fruit is a small ovoid red berry, not eatable. HENRY *l.c.*, 185 :—In Hupeh *Lycium chinense* is *kou k'i*.

Phon zo, LXXXIX, 3, 4. 枸杞, *Lycium chinense*.

E., 283, family **枸杞**, with good figure and 15 names.
S., XII, 20. *A.*, XV, 164. *C.*, 607. *Pr.*, 232. *Sm.*, 37.

Of *Solanaceæ* are mentioned :—

Jap., 445, *Capsicum anomalum*, Fr. & S., **龍珠**.
„ 447, „ *longum*, L., **番椒**.
„ 761, *Datura alba*, Nees., **曼陀羅花**.
„ 1337, *Lycium chinense*, Mill., **枸杞, 枸棘**.
„ 1346, *Lycopersicum esculentum*, Mill., **六月柿**.
„ 1498, *Nicotiana Tabacum*, L., var. *macrophyllum*, **烟草**.
„ 1621, 1622, *Physalis*. [*V. supra*, 55, 144.]
„ 2031, *Scopolia japonica*, Max., **黃菅**.
„ 2100, *Solanum Dulcamara* [*v. supra*, 79].
„ 2101, „ *lyratum*, Thbg., **蜀羊泉**.
„ 2102, „ *Melongena*, L., **茄**.
„ 2103, „ *nigrum*, L., **龍葵**.
„ 2105, „ *tuberosum*, L., **馬鈴薯**.

527.—檉 *Ch'eng*, *Tamarix*.

Shi king, 450 :—He opened up and cleared the *Tamarix* trees and the stave trees [*v. infra*, 554].

Rh ya, 250, *ch'eng* or *ho liu* (river willow).

LU KI :—The *ch'eng* or river willow grows by the water-side. Its bark is of a dark red colour. Its branches and leaves resemble those of the pine. It is also called **雨師** *yü shi* (the master of rain).

P., XXXV*b*, 25, **檉柳** *ch'eng liu*, also **垂絲柳** *ch'ui sz' liu* (drooping floss-silk willow). The *Rh ya i* states :—The

cheng liu is a very graceful tree. Its leaves resemble floss-silk. The tree knows when rain is imminent, and indicates it by its leaves moving. It is not injured either by hoar-frost or snow. K'OU TSUNG-SHI [beginning of the 12th century] says that it is commonly called 三春柳 *san ch'un liu* (three springs' willow), for it flowers three times a year. LI SHI-CHEN adds that it is a small tree with a red bark and weak branches; leaves like floss-silk; pale red flowers, like those of the *liao* (*Polygonum*), in spikes from three to four inches long. In *Ch.* [XXXV, 37] a rude figure of the *ch'eng liu*. Evidently *Tamarix* is intended.

Three species of *Tamarix* are known in China, viz.: *T. chinensis*, Lour., *T. juniperina*, Bge., *T. Pallasii*, Desv. *T. chinensis* is the most common of these three and seems to be found all over China. It is a tree of middle size, with minute acute imbricate leaves. The twigs are glabrous and of a reddish brown colour. Panicles formed of long, dense spikes of small, pale red flowers. Its common name at Peking is *san ch'un liu*.

Kwa wi, 104, 三春柳, *Tamarix chinensis*. *Phon so*, LXXX, 18, 19, 檉柳 *T. chinensis*.

E., 305, family 赤檉, with figure apparently of *Tamarix*, and 11 names.

E., 264, family 柳, has the name 檉, from the *Rh ya*, as a synonym.

Jap., 2174, *Tamarix chinensis*, Lour., 檉柳.

A., XV, 138, 觀音柳, is one of the synonyms. *E.*, 305.

528.—榆 *yü* and 枌 *fen*, in the *Shi king*, are the elm. [*See above*, 304, *Rh ya*], *Pai fen* (white *fen*) another name for *yü*.

Shi king, 176:—In the low, wet grounds are the white elms (*yü*). 206:—There are the white elms (*fen*) at the east gate.

Li ki, I, 188:—Elm-juice (榆沈) for the funeral carriage of the king. CHENG HÜAN explains it by 榆白皮之汁 (the juice from the white bark of the elm). According to the

common view, says LEGGE, the funeral carriage used by the king and princes was very heavy and difficult to drag along. To ease its transit, a juice was prepared from the elm bark and sprinkled on the ground to make it slippery. I, 451 ["Food of the Ancient Chinese"]:—Leaves of the elm-tree, fresh or dry, and the most soothing rice-water to lubricate them, and with fat and oil to enrich them. The Chinese text has only 枌 榆, "leaves" is not in the text. According to *P.*, the leaves as well as the young fruit and the bark of the elm can be eaten.

Chou li, II, 194:—Fire from elm-wood.[30] II, 466:—Fabrication des chars. Ouvriers des roues. Le débitage des trois sortes de pièces qui constituent la roue, doit se faire dans la saison propre.[31]

V. supra, 263, 304.

Jap., 183, *Aphananthe aspera*, Planch., 樸 樹.

529.—杞 *Ki*, name of a tree repeatedly mentioned in the *Shan hai king*. KUO P'O explains:—It is a tree of Shu (Sz'ch'uan) which resembles the elm. It is burnt, and the ashes are employed as manure for rice-fields.

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[30] *Chou li, l.c.*:—Le préposé au feu (司 爟) est chargé du règlement relatif à l'usage du feu. Dans les quatre saisons il modifie la nature du feu qui s'allume dans le royaume, afin de soulager les maladies de la saison.

Commentator A. (CHENG SZ-NUNG):—Au printemps on prend le feu de l'orme (榆) et du saule (柳); en été on prend le feu du jujubier (棗) et de l'abricotier (杏); à la fin de l'été on prend le feu du mûrier (桑) et de l'arbre *tcho* [柘, *Cudrania*, v. *supra*, 501]. En automne on prend le feu de l'arbre *tso* [柞 an oak, *v. infra*, 534] et de l'arbre flexible *yeou* [楢 *v. infra*, 537]. En hiver on prend le feu de l'arbre *hoei*, *Bignonia tomentosa* [槐 which is *Sophora japonica*, v. *infra*, 546] et de l'arbre de charronage *tchen* [檀 *v. infra*, 540].

[31] Commentator B. (CHENG HÜAN):—On emploie trois sortes différentes de bois pour faire les raies, le moyeu, la jante. Maintenant (sous les Han) on emploie pour les raies diverses sortes d'ormes (雜 榆); pour le moyeu le bois dur de l'arbre *than* [檀 *v. infra*, 540]; pour la jante le bois de l'arbre 橿 *kiang* [*v. infra*, 536] qui résiste à l'usure.

530.—樞 *Ch'u*. A tree of the *Shi*. LEGGE translates "thorny elm." *Shi king*, 176 :—On the mountains are the thorny elms.

Rh ya, 241, *ch'u*, where K'UO P'O states that this is the thorny elm.

LU KI :—The *ch'u* tree has thorns like the *che* [*Cudrania*, 501]. Its leaves resemble those of the elm, and may be eaten cooked ; they are more mucilaginous than those of the white elm. There are ten different sorts of elms, they resemble each other in their leaves but differ in the bark and the texture of the wood.

This thorny elm, noticed also in *P.* [article *Yü*, elm] is probably the *Hemiptelea Davidiana*, Planch., a shrub or small tree of the order *Ulmaceæ*, provided with large thorns, not uncommon in the Peking plain and in the mountains. The Chinese call it **刺榆** *ts'z' yü* (thorny elm).

Synonym of *Ulmus, E.*, 269 [*v. supra*, 263, etc.].

531.—樸 *P'o*, name of a tree in the *Shi*.

Shi king, 442 :—Abundant is the growth of the *yü* [an oak, *c. infra*, 534] and the *p'o*, supplying fire-wood.

Rh ya, 284, *p'o*, also called **枹** *pao*. The *Shuo wen* says the *p'o* is a *tsao* (jujube).

HENRY, *l.c.*, 377 :—**朴樹** *p'o* or **樸** *p'o* at Patung is *Celtis sinensis*, Pers.

HOFFM. & SCHULTES, 129 :—In Japan 樸 is *Celtis muka* (*Homojoceltis aspera*, Bl.), and [130] **朴**, *C. Willdenowiana* [= *C. sinensis*, Pers.].

C., 1040. *Jap.*, 546, *Celtis sinensis*, Pers., **朴樹**.

532.—**六駁** *Liu po* (six *po*) in the *Shi king* [201] is a doubtful designation of a tree. LEGGE translates it by "six elms."

The character *po* is also written **駁** [see *W.D.*, 708]. In the *Rh ya* [271] it is said to be a red plum, but in the section on domestic animals *po* is given as the name of an animal

like a horse with strong teeth, which eats tigers and leopards. According to the *Shan hai king*, it is a white beast with a black tail. MAO takes the *po* of the *Shi* to be an animal. But LU KI makes it to be a kind of elm called 梓 榆 *tsz' yü*, the rind of which is white and green like a piebald horse, whence the name.

HOFFM. & SCHULTES, 198:—六 駁 *Daphnidium lancifolium*, S. & Z., of the order *Laurineæ*.

E., 269, family 榆, *Ulmus*, 駁 is one of the nine synonyms.

E., 220, family 李, *Prunus*, it is also a synonym.

Laurineæ [*v. supra*, 512].

533.—Another obscure tree, said to be an elm, is mentioned in the *Chou li* [II, 391]:—Le frappeur du tambour en terre cuite, chargé de tuer les mauvais esprits de l'eau, prend une branche d'orme mâle; il la perce en travers avec une dent d'éléphant et la plonge dans l'eau. Alors les esprits meurent. The male elm in the Chinese text is 牡 樗 *mou ku*. CHENG HÜAN explains it by 枯 榆 *k'u yü*.

534.—Five or six names of trees mentioned in the Classics refer to Oaks. Some of these names are still in use, but it seems that the same appellations are applied to different species in different parts of China. China seems to be rich in oaks. F. B. FORBES [in the *Journal Bot.*, 1884, p. 80] enumerates 28 species of *Quercus* hitherto observed by European botanists in China.

Father CIBOT [in the *Mémoires conc. les Chinois*, III, 482] states, in an article on Chinese oaks, that the ancient Chinese called the oak "l'arbre de l'héritage." I have not been able to make out to what passage of the Classics or other ancient writings he refers.

Shi king, 201:—Bushy oaks (櫟 *li*) on the mountains. 183:—The wild geese settle on the bushy oaks (栩 *hü*). 248:—Doves on the bushy oaks (*hü*). 301:—Yellow bird, do not settle on the oaks (*hü*).

Ibid., 373 :—Split the branches of the oaks (柞 *tso*) for fire-wood, amid the luxuriance of their leaves. 403 :—On the branches of the oaks (*tso*) how abundant are the leaves! 441, 450 :—The oaks (*tso*) and the *yü* (棫) were thinned, and roads for travelling were opened. 445 :—Thick grow the oaks (*tso*) and the *yü*, which the people use for fuel. 442 :—Abundant is the growth of the *yü* and the *p'o* (樸) supplying fire-wood.

Chou li, II, 387 :—Les arracheurs des arbres (柞氏) sont chargés de l'abatage des arbres, de la destruction des plantes sauvages, du défrichement des forêts et des côtes boisées. II, 194 :—Fire from the wood of the 柞 *tso* tree. [*See* quotation in 528, note. See also *supra*, 469.]

Rh ya, 264 :—The fruit of the 櫟 *li* is called 梂 *k'iu*. Sun Yen explains that this is the 橡 *siang*.

Rh ya, 239 :—栩 *hü*, same as 杼 *chu*. Kuo P'o says :—Same as 柞 *tso*. The *Shuo wen* says the fruit of the 栩 *hü* is 樣 (this character here, according to *K.D.*, stands for 橡) or 皁 *tsao*.

Of the above names, 橡, 櫟, 柞, 杼, 棫 appear also in the *Shan hai king*.

Cheng Hüan, in commenting upon the *Shi*, says that 柞 and 櫟 are the same.

Lu ki :—The 櫟 *li* tree. The people of 秦 Ts'in (Eastern Kansu and Shensi) call it also 柞 *tso*, the people of Ho nei (Northern Honan) 木蓼 *mu liao* or *li*. It is allied to the 椒樧 *ts'iao sha* [Lu ki is mistaken. Compare the *Rh ya*, 329]. The house of the seed (子房, he means the cupule of the acorn) is called 梂 *k'iu*.

In another place Lu ki states :—The 栩 *hü* is now called 柞 *tso* or 櫟 *li*. The people of 徐州 Sü chou (Northern Kiangsu) call it *li* or 杼 *chu*, also *hü*. Its fruit is called 皁 *tsao* or 皁斗 *tsao tou*. Its covering (the cupule) contains a

sap which is used for dyeing black. In 京洛 King lo (Honan) and Ho nei (Northern Honan) they call it 杼汁 *chu chi* or 橡斗 *siang tou*, or *li*.

Lu ki notices further the 棫 *yü* as an oak, stating that it is the same as the *tso*. One kind, with a white wood without a red heart, is called 白桵 *pai jui*. It has straight veins, is easily split, and is good for making cases, axles, lances and spears. But the *pai jui*, or *yü*, according to the *Rh ya* [300], is not an oak.

In *P.* [XXX, 53, article 橡實 *siang*-fruit] all the above names are given as synonyms of *siang*. These names are probably applied to several allied species of *Quercus*.

Su Sung [11th century] says :—櫟 *li* or 柞 *tso* is the name of the wood, whilst the fruit (rather the cupule) is called 橡斗 *siang tou*. It is used for dyeing black. The cupules of the 槲 *hu* [another oak, *see* 535] can be used for the same purpose, but the *siang tou* is considered the best. The *siang* tree grows from 20 to 30 feet high.

K'ou Tsung-shi [beginning of 12th century] states :—The leaves of the *li* tree resemble those of the chestnut. The wood although tough is not much valued as timber, but the best charcoal can be made of it. The cupules of the fruit are employed in dyeing black.

Li Shi-chen adds :—There are two sorts of the *li* tree. One of them does not bear fruit, the heart of its wood is red. This is called 棫 *yü* and is mentioned in the *Shi* together with the *tso*. The wood of the other kind, which produces fruit, is called 栩 *hü* and its fruit 橡 *siang*. Yellow flowers like those of the chestnut. This is much cultivated in the Northern provinces. Large trees, the timber used for pillars, the smaller trees for fuel and for making charcoal. The fruit is eaten by the people ; it is also good for fattening swine.

The 橡 *siang* at Peking is the *Quercus Bungeana*, Forbes (*Q. chinensis*, Bge.). d'Incarville calls it *Q. castaneifolia*.

It is a tree of middle size, common in the mountains. Its leaves strongly resemble those of the chestnut. The cupule is covered outside with long, lanceolate, reflexed scales. The Chinese call this cupule 橡椀子 *siang wan tsz'* (*wan* a cup) and use it extensively for dyeing black.

The drawing of the *siang* in *Ch.* [XXXII, 41] is very rude, but it seems *Quercus Bungeana* is intended.

Cl. Abel [see his *Journey in the Interior of China*, 1816, 1817, p. 165] gathered near the Poyang lake in Kiangsi two oaks which R. Brown named *Q. chinensis* and *Q. densifolia*. They were used by the natives as pollards, considerable quantities of the branches being accumulated for fire-wood or for charring. These may have been among the oaks referred to in the Classics. Henry [*l.c.*, 233, 234, 235] mentions several oaks to which in Hupei the names *li* and *siang* are applied.

The *Q. Bungeana* is not found in Japan. The Japanese botanists have applied the Chinese names *siang* and *li* to an allied small-leaved species, the *Q. serrata*, Thbg. *Amœn. exot.*, 816 :—櫟 *reki*, vulgo *kunugi*, etc. Ilex rubra, ligno in rufum languente, durissimo. Siebold [*Syn. plant. œcon. jap.*, 153] *Q. serrata*, *kusugi*, 櫟. Cortex adhibetur ad nigrum tingendum. *Phon zo*, LXVI, 18 :—橡實, *Q. serrata*.

E., 236. *V. supra*, 239.

535.—樸樕 *P'o su*. Legge calls it the scrubby oak.

Shi king, 34 :—In the forest there are the scrubby oaks. Mao says the *p'o su* is a small tree.

Rh ya, 300 :—We read there *su p'o* instead of *p'o su*. According to Kuo P'o, an oak.

P., XXX, 55, 槲實 *hu shi* (fruit) or 槲樕 *hu su* or 樸樕 *p'o su*, also 大葉櫟 *ta ye li* (large-leaved *li*) and 櫟橿子 *li kiang tsz'*.

Su Sung [11th century] :—The *hu* is a common tree in the mountains. It is akin to the *li* (*i.e.*, it is likewise an oak). The acorns are smaller and are not gathered, as they

are of no use. But the bark and leaves are employed in medicine.

K'ou Tsung-shi [beginning of the 12th century] states:—The wood of the tree is hard, but not much valued as timber; it is more generally employed for fuel and for charring; but this charcoal is inferior to that obtained from the *li* wood.

Li Shi-chen:—There are two kinds of *hu*. One is small, grows in a bushy manner; the *Rh ya* calls it 枹 *pao* [*v. supra*, 284, probably *Celtis*]. The other, called *ta ye li*, is a tall tree with large, thick, coarse leaves which fall off in winter. Flowers like those of the chestnut. The fruits resemble those of the *siang* [*see the preceding*], but are smaller; they have a cupule. Although the acorns have an unpleasant taste, they are eaten by the people in time of scarcity. The wood is coarsly veined, and less valued than that of the *siang*.

At Peking the name *hu* is applied to *Quercus dentata*, Thbg. (same as *Q. oborata*, Bge.), but the tree is more commonly known under the name of *po lo shu*. The leaves of this oak are sessile, obovate, sinuate, of enormous size on young specimens, sometimes nearly two feet long. The cupule outside is scaly, like that of *Q. Bungeana*, but the scales consist of thin filaments. This species, and probably some other broad-leaved oaks, may have been the *p'o su* of the *Shi*, used for fuel.

Ch. [XXXII, 40] figures under *hu shi* an oak with acorns, probably *Q. dentata*. Henry [*l.c.*, 125], *hu li*, *Quercus aliena*, Bl.

Amœn. exot., 816:—槲 *koku*, vulgo *kasjuwa*. Ilex alba ligno candido. Siebold [*Syn. plant. œcon. jap.*, 155]:—*Quercus dentata*, *kasiwa*. Same Chinese name as above.

Phon zo, LXVI, 20, 槲, *Q. variabilis*, Bl., and 24, 大葉槠, *Q. aliena*, Bl.

V. supra, 308.

536.—橿 *Kiang.* Name of a tough wood mentioned in the *Chou li* [II, 466], fit for making felloes. [*See* the quotation in 528.] The same is repeatedly noticed in the *Shan hai king.* Kuo P'o says that it is used in making carts. As we have seen [535], Li Shi-chen takes the *kiang* to be an oak.

In the *Description of Japanese Timber Trees*, 橿 is a popular name for *Quercus acuta* and *Q. glauca.*

537.—楢 *Yu.* [See the *Chou li*, II, 194; quotation in 528, note]:—Fire from the *yu* wood. The *Shuo wen* says the *yu* is a flexible wood used for making felloes. The *yu* tree is frequently mentioned in the *Shan hai king.* Kuo P'o says:—剛木 *kang mu*, a hard wood used in making carts. The *kang mu* is likewise noticed in the *Shan hai king.* Kuo P'o says that it resembles the 檀 [*v.* 540] and the 柘 [*v.* 501]. It is probably also an oak. *Ch.* [XXXVII, 5] and the *Kin huang* [LIV, 23] under 青岡木 *ts'ing kang mu*, describe and figure oaks.

The dictionary *Kuang yün* (T'ang dynasty) identifies the *yu* with *tso* (oak); the dictionary *T'ang yün* says it is a red wood.

According to Geerts, *Japanese Woods*, 楢 in Japan is *Quercus crispula*, Bl.

538.—櫧 *Chou.* Name of a tree mentioned in the *Shan hai king* and the *Shuo wen.*

According to Henry [*l.c.*, 82] this Chinese name is applied in Hupei to *Quercus glauca*, Thbg., and other species. The wood is very hard. The *chou* tree is figured in *Ch.* [XXXVII, 1], and is said to grow in Hunan. Two varieties, a red and a white, are noticed.

539.—櫧 *Chu.* This name is of frequent occurrence in the *Shan hai king.* Kuo P'o explains that it is an evergreen

tree resembling the 柞 *tso* (*Quercus*). It produces an edible fruit. Incorruptible timber used for posts in building houses.

P., XXX, 52, 櫧子 *chu tsz'*. Li Shi-chen says that there are two kinds of *chu*. One of them is a large evergreen tree with serrate, shining leaves resembling those of the chestnut. The fruit is as large as that of the *hu* [*Quercus*, 535], pointed. The edible seed (acorn) is enclosed in an involucre (cupule) and is known under the name of 甜櫧子 *t'ien* (sweet) *chu tsz'* or 麪櫧子 *mien* (mealy) *chu tsz'*. The other kind is the 苦櫧子 *k'u* (bitter) *chu tsz'*. Its wood is coarsely veined and of a red colour. It is also called 血櫧 *hüe* (blood) *chu*.

The first of the trees mentioned, that with edible acorns, is, according to Henry [*l.c.*, 95], *Quercus sclerophylla*, Lindl. Both are figured under the above names in *Ch.* [XXXII, 46, 44].

Siebold, *Icon. ined.*, VII, and *Flora Japon.*, I, 170, *Quercus glabra*, Thbg., sinice 櫧. Acorns eaten. *See also* the *Phon zo* [LXVI, 15], same Chinese name, *Q. glauca*, Thbg. *Ibidem*, 苦櫧, *Quercus acuta*, Thbg. The same species in *Japanese Woods* [Home Department] has the Chinese name 血櫧.

Of *Cupuliferæ* are mentioned :—

Jap., 338, *Betula alba*, L., var. *vulgaris*, DC., 樺木 [*v.* 553].
„ 114, *Alnus maritima*, Nutt, var. *jap.*, Reg., 赤楊.
„ 690, *Corylus* [*v.* 496].
„ 1834, *Quercus acuta*, Thbg., 血櫧.
„ 1836, „ *cuspidata*, Thbg., 柯樹.
„ 1837, „ *dentata* [*v. supra*, 308].
„ 1839, „ *glandulifera*, Bl., 枹.
„ 1840, „ *glauca*, Thbg., *forma sericea*, 麪櫧.
„ 1841, „ *gilva*, Bl., 石櫧.
„ 1847, „ *serrata*, Thbg., 櫟.
„ 937, *Fagus Sieboldi*, Endl., var. *undulata*, Bl., 山毛欅.

540.—檀 *T'an.* LEGGE calls this tree the sandal tree.

Shi king, 127 :—Do not break my sandal trees. 169 :—"*K'an k'an*" go his blows on the sandal trees, and he places what he hews on the river's bank. 266 :—His chariot of sandal-wood must be damaged, his four horses must be worn out. 297 :—Pleasant is that garden with the sandal trees. 436 :—Chariots of sandal-wood mentioned in connection with the famous battle at 牧野 Mu ye, which issued in the overthrow of the Shang dynasty, B.C. 1122.

Li ki, I, 125 :—檀弓 *T'an kung* (bow of *t'an* wood). Title of a chapter in the *Li ki*, on mourning rites.

Chou li, II, 194 :—Fire from the *t'an* wood. II, 466 :—*T'an* wood used for making wheel-naves. [*See* quotation in 528, note.]

The *t'an* tree is frequently mentioned in the *Shan hai king*. MAO explains the character *t'an* in the *Shi* by strong and flexible wood.

LU KI :—The bark of the *t'an* tree is green and glabrous, resembling the rinds of the 檕迷 *hi mi*[32] and 駁馬 *p'o ma* [*v. supra*, 532].

P., XXXV*a*, 37, *t'an*. LI SHI-CHEN says :—A tree with a finely veined hard wood and leaves resembling those of the *huai* [*Sophora*, v. *infra*, 546] ; purple flowers.

According to HENRY [*l.c.*, 442] *t'an* in Hupei is the *Dalbergia hupeana*, Hance, which is figured in *Ch.* [XXXV, 24] and yields a good, hard wood.

Phon zo, LXXXIII, 13, 14, 檀 :—Only leaves figured. HOFFM. & SCHULTES [102] give the same Chinese characters as one of the names for *Cæsalpinia japonica*, S. & Z.

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[32] The *hi mi* is, according to the ancient *Kuang chi*, the name of a fruit, small and globular, resembling the *Diospyros Lotus*, sweet and somewhat bitter. [See *P.*, XXXIII, 33].

E., 254, family 檀, with figure of a tall tree with thorny stem, alternate leaves and single berries. 白檀, *H.*, 444, *Symplocos cratægoides*, Don., is one of the synonyms. *Symplocos*, however, is unarmed and has other fruits. *P.* [XXXV, 37] has a figure of *t'an*, also called 黃檀, the yellow *t'an*, also a synonym of *E*, 254. Another figure in *P.* [XXXIV, 35] 檀香 or Sandal wood.

Sm., 192. *Jap.*, 1988, *Santalium album*, L.

H., 443, gives 青檀 as the Ichang name for *Celtis sinensis*. *V. supra*, 531.

541.—扶蘇 *Fu su*. An obscure tree mentioned in the *Shi king* [138]. MAO says:—A small tree. One of the commentators thinks that a mulberry tree is meant.

542.—舜 *Shun*, more correctly written 蕣. LEGGE calls it the ephemeral hedge tree.

Shi king, 136:—There is the lady in the carriage with a countenance like the flower of the ephemeral hedge tree.

MAO explains *shun* by 木槿 *mu kin*. The *Shuo wen* says that its flowers blossom in the morning and fall off at night.

Regarding the *mu kin*, see the *Rh ya* [6]. It is the *Hibiscus syriacus*, L. The philosopher CHUANG TSZ' [4th century B.C.] calls it 日及 *ji ki* (the ephemeral).

Li ki, I, 275 [*Yüe ling*]:—Second month of summer. The tree *Hibiscus* [*mu kin*] flowers.

LU KI:—*Shun* or *mu kin*. The people of 齊 Ts'i and 魯 Lu (Shantung) call it 王蒸 *wang cheng*.

MU KIN is still the common name for *Hibiscus syriacus*, which is much cultivated as an ornamental shrub all over China. I may, however, observe that the ancient Chinese appellation "ephemeral flower" seems rather to hint at *Hibiscus mutabilis*, which is likewise much cultivated in China.

P., XXXVI, 64, *mu kin*, good description of *H. syriacus*. It is well represented in the *Kin huang* [LIV, 3] and *Ch.* [XXXV, 34]. In Hunan and Hupei it is much used for hedges.

Amœn. exot., 858 :—槿 *kin*, vulgo *mu kunge*. Malva frutex hortensis . . . . folio auriculato, flore in purpureum cœruleo. *Phon zo*, XC, 1–8 :—木槿, various varieties of *H. syriacus* figured.

V. supra, 6, 369.

543 —棶 *Hu*. LEGGE calls it arrow-thorn.

Shi king, 444 :—On the foot of the Han mountain (旱, unknown where it was) is the arrow-thorn.

Shu king, 112 ["Tribute of Yü"] :—The *hu* tree produced in the province of King chou (Hupei). K'UNG AN-KUO says it was good for making arrows. LEGGE states that Confucius on one occasion refers to the famous *hu* arrows.

The *hu* is mentioned in the *Shan hai king*.

LU KI :—The *hu* resembles the 荊 *king* [*Vitex*, v. *supra*, 521] but has a red stem resembling the 蓍 *shi* [the divining plant, *v. supra*, 428]. The people of 上黨 Shang tang (South-eastern Shansi) employ it in basket-making and for ladies' hair-pins.

That is all we know from the ancient authors regarding the *hu* tree. Although LEGGE calls it the arrow-thorn, Chinese authors do not say that it has thorns. It seems that this tree or shrub is still known under its ancient name in China. We find the *hu* mentioned in the *Shansi t'ung chi* as growing in Lu an fu.

E., 271, family 棶, without figure.

544.—杻 *Niu*.

Shi king, 176 :—In the low, wet grounds is the *new* tree. 273 :—On the hills of the north is the *new* tree.

The *niu* tree is frequently mentioned in the *Shan hai king*. According to the *Rh ya* [230] it is also called 檍 *i*. KUO P'O says it resembles the 棣 *ti* [*Prunus*, v. *supra*, 476].

The 檍 *i* is mentioned in the *Chou li* [II, 194] as a tree of which bows can be made. [*See* the quotation in 501, note.]

The *Shuo wen* explains *i* by 杶 *ch'un* [*Cedrela*, v. *supra*, 520].

Lu ki:—The leaves of the *niu* or *i* tree resemble those of the apricot, but are more pointed, white (downy). Its bark is red. The wood grows very crooked. Luxuriant leaves. In the second month it opens its white flowers like those of the 楝 *lien* (*Melia*) with a silky appearance and small stamens. The tree is now cultivated in the government gardens. It goes also by the name of 萬歲 *wan sui* (the myriad years or everlasting). Its original name is explained by 億 *i*, which means myriads. The leaves are handsome. The tree is much cultivated at the foot of mountains. It is also called 牛筋 *niu kin*. Its wood is used for bows.

Legge states that in the Japanese plates the *niu* is figured as the Privet or *Ligustrum*.

E., 147, family 卷柏, *Lycopodium*, *Wan sui* is a synonym.

E., 307, family 南燭, with figure of a tree, probably not *Ligustrum*.

E., 307, family 女貞, with a pretty good figure of *Ligustrum*: has *niu kin* as a synonym.

Jap., 1267, *Ligustrum Ibota*, Sieb., 水蠟樹.

„ 1268, „ *japonicum*, Thbg., 女貞.

Other *Oleaceæ* are mentioned:—

Jap., 965, *Forsythia suspensa*, Vahl., 連翹.

„ 971, *Fraxinus pubinervis*, Bl., 梣.

„ 1188, *Jasminum floridum*, Bge., 黃素馨.

„ 1189, „ *grandiflorum*, L., 素馨.

„ 1191, „ *Sambac*, Ait., 茉莉.

„ 1192, „ *Sieboldianum*, Bl., 迎春花.

„ 1509, *Olea fragrans*, Thbg., 木犀, 桂花.

Melia azedarach, L., var. *subtripinnata*, Miq., is 楝, *Jap.*, 1409.

Melia Toosendan, S. & Z., 川楝, *Jap.*, 1411.

545.—棣 *I*. A tree mentioned in the *Shi king* [359]:—In the marshes are the medlar (*k'i* v. *supra*, 526) and the *yi*.

It is said [*Rh ya*, 294] that the *i* is also called 赤棣 *ch'i ts'u* (red *ts'u*) and that a white kind is simply called *ts'u*.

Lu ki:—The leaves of the *ts'u* resemble those of the 柞 *tso* (an oak). Its bark is thin and white Another kind is called *ch'i ts'u*. It has a red wood. This is the *i* tree. The former is also called *pai ts'u* (white *ts'u*). Its wood is hard and pliant, suitable for making wheel-naves.

546 —槐 *Huai*. A tree mentioned in the *Chou li*.

Chou li, II. 347, 348:—Règlement de l'audience officielle de l'extérieur. À gauche il y a neuf buissons d'épine (棘 *Zizyphus*, v. *supra*, 485). Les vice-conseillers, ministres ou préfets se tiennent debout à ces neuf places. Les gradués sont derrière eux. À droite il y a aussi neuf buissons d'épine. Les princes feudateurs des cinq ordres *Kong*, *Heou*, *Pe*, *Tseu*, *Nan* (公, 侯, 伯, 子, 男) se tiennent debout à ces neuf places. Les officiers secondaires sont derrière eux. En face sont les trois arbres *hoaï* (槐) *Bignonia tomentosa*. Là se tiennent debout les conseillers auliques. Les chefs d'arrondissement se pressent derrière eux. *Ibidem*, II, 194:—Fire from the *huai* wood. [*See* quotation in 528, note. *See also* in 550, *huai* trees planted about the graves of functionaries.]

Huai is now the common name for *Sophora japonica*, L., a tree very common throughout China. It is frequently mentioned in the *Shan hai king*. It would, however, seem from the *Rh ya* [288–290] that in ancient times the name *huai* was applied to several trees of the leguminous order. *P.* [XXXV*a*, 31] describes under this name only *Sophora japonica*. It is well represented in *Ch.* [XXXIII, 19].

Amœn. exot., 841, 槐 *quai* vulgo *jens* et *quai kaku*. Arbor foliis ex quatuor lobis, uno costam claudente pinnatis, siliquis articulatis. Exotica arbor et hoc cœlo rara ac fere sterilis. An Tamarindus. *Jens'u* is, according to Thunberg, the Japanese name for *Sophora japonica*. Kæmpfer evidently

describes this tree, of which he probably saw a poor specimen. Its pimnate leaf has from 11 to 15 leaflets. *Phon zo.* LXXXIII, 10–13, 槐, *Sophora japonica.*

E., 255, family 槐, with recognizable figure of *Sophora.*
C., 502, 505. *Pr.*, 58, 195. *Sm.*, 201. *S.*, IX, 4. *H.*, 130.
V. supra, 356.

547.—In the *Hia Calendar*, 43, third month, we read 采識. Douglas translates:—Plucked are the *Tacca pinnatifida.* I am not aware upon what authority this identification is based. Douglas refers the 識 *shi* of the *Hia Calendar* to the plant 苦藏 *k'u che* of the *Pen ts'ao kang mu.* which name is there applied to two different plants [see *P.*, XVI, 33, 37]. One of them is a *Physalis.* [V. the *Rh ya*, 144]. I should rather think that the *shi* of the *Hia Calendar* is the 苦藏 *k'u shi*, a medicinal plant noticed in the *Shen nung pen ts'ao* and otherwise called 苦參 *k'u shen.* [See *P.*, XIII, 32.] Judging by the description given there of the plant, it belongs to the leguminous order. The root is very bitter. *Ch.* [VIII, 5] figures, under *k'u shen*, a leguminous plant. Loureiro [*Flora cochin.*, 556] gives *khu sem* as the Chinese name for *Robinia amara* [unknown to botanists], the root of which, he says, is "amarissima." According to Henry [*l.c*, 190] at Ichang *k'u shen* is *Sophora kronei*, Hance.

So moku, XIV, 28, 苦參, *Sophora angustifolia*, S. & Z.

E., 161, family 苦參, with two figures, copies of *S.*, II, 21.
C., 635, *Sophora flavescens*, Ait.
Sm., 186, *Robinia.*
E., 64, family 蕆, *Houttounia*, 蕆 is one of the synonyms [*V. supra*, 144].

548.—柂 *I*, also written 柂, and sometimes read *t'o.*

Hia Calendar, 21, first month:—梅杏柂桃則華. Douglas translates:—Plum, apricot, mountain peach trees then blossom. The Chinese commentary explains indeed 柂桃 by 山桃 (mountain peach) referring, it seems, to the

Rh ya [268], but 梅 in the *Rh ya* [226] is a distinct tree, likened to the white poplar.

Li ki, I, 158:--The *i* wood used for coffins. [*See* the quotation in 508.]

549.--樿 *Chen.* A wood mentioned in the *Li ki* [I, 401, and II, 5]. Ladles and combs made of this wood. The commentary says that the wood is white veined. It is also mentioned in the *Shan hai king*, together with the 椒 *tsou*. *W.D.* [961] takes *tsou chen* to be one name, but Kuo Po keeps *tsou* and *chen* apart. The *Shuo wen* defines *tsou* by fuel.

550.—欒 *Lan* (*luan*), a tree mentioned in the *Chou li* [II, 517]. Biot reads *lien*. Cuiseurs de soie. Pour apprêter les étoffes de soie, ils font bouillir dans l'eau, des cendres faites avec le bois de l'arbre *lien*. Avec cette eau clarifiée on humecte les étoffes de soie.

According to the dictionary *Tsi yün* [Sung period], the above character is to be pronounced *luan*. Some say that it is the same as 楝 *lien* (*Melia*), others identify it with the 欒 *luan*.

As to the *luan*, it is said to have been one of the trees planted about graves in ancient times. [*See* the *Chou li*, II. 22, 冢人, Superintendent of the Graves. It was his duty, amongst others, to select the trees planted about the graves and to fix their number.] The commentary [not translated by Biot] quotes the *Ch'un ts'iu wei* [1st century B.C.], where it is stated:—The tumulus for the grave of the Son of Heaven (天子) was 30 feet high. Pine trees [松 v. *supra*, 504] were planted about it. The tumulus for the feudal princes (諸侯) was half as high, the trees planted about it were the 柏 *po* (*Thuja*, v. *supra*, 505). The height of the tumulus for the high functionaries (大夫) was 8 feet, the trees planted around were the 欒 *luan* [the original text has 藥草,

medicinal herb, but the commentators observe that this is a mistake for *luan*. See also the *Shuo wen*, under *luan*]. The height of the tumulus for the other officers (士) was 4 feet, the trees planted about were the 槐 *huai* (*Sophora*, v. *supra*, 546). The common people (庶) were not entitled to a tumulus. 楊 柳 *yang liu* trees (willows, v. *supra*, 524) were planted about the graves.

P., XXXV*b*, 15 :—欒 華 *Luan hua*. The ancient authors say that it is a tree growing in Middle China, with leaves resembling those of the *mu kin* (*Hibiscus syriacus*), yellow flowers, and fruit like that of the *suan tsiang* (*Physalis alkekengi*, v. *supra*, 55]; the pea-like black seeds are contained in a bladder. The flowers are used for dyeing yellow, the seeds are employed in medicine and also used as beads. The tree is figured in the *Kin huang* [LIV, 29] and in *Ch.* [XXXIII, 49]. It is the *Kelreuteria paniculata*, Laxm., which is very common in Northern China. Its fruit capsules resemble bladders. Its popular name at Peking is 木欒牙 *mu lan ya*. The leaves furnish a black dye.

Kwa wi, 120, and *Phon ts*, LXXXIV, 4, 5 :—欒 華 *Kalreuteria paniculata*.

E., 308, family 欒 華, with figure of *Kælreuteria*.

Sapindaceæ are mentioned :—

Jap., 28, *Acer palmatum*, Thbg., 槭 樹.
„ 36, „ *trifidum*, Thbg., 三 角 楓.
„ 68, *Æsculus turbinata*, Bl., 七 葉 樹.
„ 923, *Eupholia* (commonly *Nephelium*) *Li-chi*, Desf., 荔 枝.
„ 924, „ *Longana*, Lam., 龍 眼.
„ 930, *Euscaphis staphyleoides*, S. & Z., 野 鴉 椿 [v. *supra*, 518].
„ 1214, *Kælreuteria paniculata*, Laxm., 欒 樹.
„ 1990, *Sapindus Mukorosi*, Gaertn., 無 患 樹.
„ 2141, *Staphylea bumalda*, S. & Z., 省 沽 油.

551.—木蘭 *Mu lan.* A tree mentioned in the *Li sao* [5]:—Le *mou lan* de la montagne Pi. *Ibidem*, 12:—La rosée suspendue aux feuilles de l'arbre *lan.*

P., XXXIV, 23:—*Mu lan. Ch.* [XXXIII, 14] figures, under *mu lan*, a *Magnolia.*

Amœn. exot., 845:—木蘭 *Mokkuuren.* Frutex tulipifer . . . . . flore Lilio-narcissi rubente. This is figured in J. Banks' *Icones Kæmpferi* [5 el., tab. 43], and is, according to Maximowicz, *Magnolia obovata*, Thbg. Not indigenous to Japan. The tree has been introduced from China.

E., 293, family 木蘭, with good figure of a *Magnolia* tree.

A. [XV, 35] mentions also the name 木蓮, which is a synonym in *E.*, but is commonly applied to *Ficus pumila*, Bl. *P.*, XVIIIb, 40.

Other *Magnoliaceæ* are mentioned:—

Jap., 1209, *Kadsura japonica*, L., 南五味子.
" 1379, *Magnolia compressa*, Max., 黃心樹.
" 1380, " *conspicua*, Salisb., 玉蘭.
" 1383, " *hypoleuca*, S. & Z., 浮爛羅勒.
" 1384, " *Kobus*, DC., 辛夷.
" 1385, " *obovata*, Thbg., 木蘭.
" 1386, " *parviflora*, S. & Z., 天女花.
" 2011, *Schizandra chinensis*, Baill., 北五味子.
" 2012, " *nigra*, Max., 內風消.

552.—桂 *Kui* is the name for the Chinese Cassia bark and the tree from which this bark is obtained, the *Cinnamomum Cassia*, Bl., a native of Southern China.

Li ki, I. 135:—Cinnamon (*kui*) mentioned as a strengthening spice. [*See* the quotation in 381.] *Ibidem* [I. 461]:—Cinnamon together with Ginger.

The *kui* is mentioned in the *Shan hai king*, in the *Shen nung pen ts'ao* and in the *Rh ya* [247].

The *Shuo wen* says the *kui* is a tree of Kiangnan; it yields the best of all medicines.

Li sao, 6 :—Ils réunirent le poivrier de Chen [*see* 497] à l'arbre *kiun* et au cannellier (*kouey*). 13 :—Je mêle le *kiun* et le *kouey*. D'HERVEY here takes *kiun* and *kouey* as two distinct plants, but *kiun kouey* is one name, denoting a peculiar kind of cinnamon.

P., XXXIV, 13 :—*Kui*. The ancient authors describe several sorts of cinnamon. The 牡桂 *mou kui* (male cinnamon) or 木桂 *mu kui* (tree cinnamon), said to be a thick bark from a tree with large leaves, which grows in 南海 Nan hai (Southern China), is that mentioned in the *Rh ya*. Another sort [*P.*, XXXIV, 21] is called 箘桂 *kün kui*. It is the bark of a smaller tree said to grow in the mountains of 交趾 Kiao chi (Cochin-china). The Chinese Cassia trees are figured in *Ch.* [XXXIII, 7, 8].

At the end of the article *kün kui*, LI SHI-CHEN observes that the ancient authors comprised in this denomination another tree much cultivated in China under the names of 巖桂 *yen kui* or 木樨 *mu si*. There are three varieties, one with white flowers 銀桂 *yin kui*, one with yellow flowers 金桂 *kin kui* and one with red flowers 丹桂 *tan kui*. The flowers appear in autumn or in spring ; some varieties have flowers the whole year. The bark of the tree is thin and has not the properties of the true cinnamon. The flowers are very fragrant and employed for scenting tea. This tree is the *Olea fragrans*, Thbg., a tree much cultivated in China for its small, fragrant flowers which at Peking appear in August in great profusion in the axils of the leaves. The flowers are white or reddish brown. It is commonly called 桂花 *kui hua* or Cassia flowers. It is known by the same name at Canton. A good drawing of the plant is found in *Ch.* [XXXIII, 10] under *yen kui*.

MARTINI [in his *Atlas sinensis*, published about 230 years ago] reports that the city of 桂林府 Kui lin fu, the capital of Kuangsi, derives its name (city of the *kui* forests) from

the abundance of this tree in the neighbourhood. [*See* my *Early Europ. Res. Bot. China*, 12.] I suspect that the *kün kui* mentioned in the *Li sao* may refer to *Olea fragrans* rather than to Cassia bark.

SIEBOLD, *Syn. plant. œcon. jap.*, 139 :—*Cinnamomum Cassia*, *Nikkei*, 桂. E China introducta, hic ac inde colitur in usum medicum. SIEBOLD, *Icon. ined.*, VI :—*Cinnamomum pedunculatum*, Nees., 桂.

Phon zo, LXXX, 2, 牡桂, *C. pedunculatum*.

Amœn. exot., 844 :—木樨, *mokksei*, arbor hortensis folio Castaneæ, flosculis albidis in croceum languentibus, tetrapetalis, pumilis, in axillis foliorum confertim nascentibus, Jasminum spirantibus, fragrantissimis ; unde Sinensibus in deliciis sunt. SIEBOLD, *Syn. plant. œcon. jap.*, 203 :—*Osmanthus* (*Olea*) *fragrans*, *moksei*. Chinese name as above. *Phon zo*, LXXX, 8 :—*Olea fragrans*. Same Chinese name.

V. supra, 247, 512.

553.—穫 *Huo*, also written 擭.

Shi king, 354 :—有冽沈泉無浸穫薪. LEGGE translates this passage :—The cold waters issuing variously from the spring do not soak the fire-wood I have cut. LEGGE, who follows one of the Chinese commentators, takes 穫薪 to mean fire-wood that has been cut down. But most of the commentators say that the first character denotes a tree. CHENG HÜAN and K'UNG YING-TA refer to the *Rh ya* [235] *huo* or *lo*.

LU KI :—The *huo* is now called 椰榆 *ye yü* (cocoa-nut elm, unknown to me). The leaves resemble those of the elm. Its bark is strong and supple. The people strip it off in pieces several feet long, and twist it into ropes. Of the wood, drinking-vessels can be made.

The dictionary *Yü pien* [6th century] says that the *huo* is the same as 樺 *hua*, which is the Birch tree.

P., XXXV*b*, 37, 樺木 *hua mu*. *Ch.*, XXXVII. 41.

The birch is a common tree in the more elevated mountains of Northern China. The people call it *hua*. Three or four species of *Betula* are known in China.

SIEBOLD, *Syn. plant. œcon. jap.*, 148:—*Betula japonica* (a variety of *B. alba*, L.), *sirokaba*, 樺. Cortex arboris in regionibus borealibus pro charta aliisque adhibetur utensilibus. *Phon zo*, LXXXV, 10, 11, 12:—Same Chinese name, *Betula*.

E., 254, family 樺. Figure of a large tree, the parallel veined leaves and round, berry-like fruit do not agree with *betula*.

C., 498. *H.*, 128. *Sm.*, 45. *Jap.*, 338, *B. alba*, L., var. *vulgaris*, Reg., 樺木.

V. supra, 235.

554.—椐 *Kü*. LEGGE calls it the stave tree. *Shi king*, 450. *Rh ya*, 249:—*Kü*, also *wei* (*k'ui*), which produces walking-sticks. The *kü* is frequently mentioned in the *Shan hai king*.

LU KI:—The *kü* or *wei* is used by old men for walking-staves. It is also called 靈壽木 *ling shou mu* (the tree of longevity). The people employ it for whip-handles and lances. It grows plentifully in the northern mountains of 宏農 Hung nung (in Honan).

P., XXXVI, 75:—*Ling shou mu*, or *kü*, also 扶老杖 *fu lao chang* (walking-staff for old men). The first name dates from the time of the Han dynasty. In the *Han History*, in the biography of 孔光 K'UNG KUANG, a high dignitary, it is stated that after he had been ill the empress bestowed upon him a staff of longevity to lean on when going to court. YEN SHI-KU [of the T'ang dynasty] who commented upon the *Ts'ien Han-shu*, says that this plant is like the bamboo, having joints, and is not more than 8 or 9 feet high, the stem 3 or 4 inches in circumference, fit, as it grows, for walking-sticks without any cutting or forming.

V. supra, 249.

555.—椶 *Tsung*. This tree is repeatedly mentioned in the *Shan hai king*. Kuo P'o describes it as a tree growing to a height of 30 feet; it is branchless. The leaves are at the end of a common stalk and form a circle [the author means to describe a fan-shaped palm-leaf]. The bark of the trunk forms joints and is useful for making ropes [the author speaks of the sheaths of the bases of the leaves, which cover the trunk]. It is also called 栟櫚 *ping lü*.

The *Shuo wen* likewise identifies the *tsung* with the *ping lü*. The tree here spoken of is a palm, the *Chamærops Fortunei*, Lindl., which is very common in Middle and Southern China. The coir furnished by it is largely manufactured into cloaks and hats.

P., XXXV*b*, 39 :—*Tsung lü*. The author Su Sung [11th century] gives a characteristic description of this palm. Among other peculiarities he notes that its leaves form a circle and resemble a wheel with spokes, and that its bunches of yellowish white flowers resemble fish-roe.

Ch. Fortunei is closely allied to the Japanese *Ch. excelsa*. Thbg. Perhaps it is the same.

Amœn. exot., 898 :—椶櫚 *sjuro* et *sodio*, Palmæ Malabaricæ codda panna dictæ (*Corypha umbraculifera*) affinis, folio minori; hoc calo sterilis et ob ornatum culta. Siebold, *Syn. plant. œcon. jap.*, 50. *Chamærops excelsa*, Thbg., *siro* 棕櫚. Provinciarum præsertim meridionalium incola. *Phon zo*, LXXXV, 15, 16.

E., 252, family 椶, with good figure.
S., VIII, 30. *C.*, 1358.

Of *Palmæ* are mentioned :—

Jap., 206, *Arenga saccharifera*, Labill., 莎木麪.
" 408, *Calamus Draco*, Willd., 麒麟竭.
" 566, *Chamærops excelsa*, Thbg., 椶櫚.
" 646, *Cocos nucifera*, L., 椰子.
" 1312, *Livistonia chinensis*, Br., 蒲葵.

Jap., 1870, *Rhapis flabelliformis*, Ait., 櫻竹.
„ 1871, *Rhapis major*, Bl., 棕竹.
„ 1963, *Sagus Rumphii*, Willd., 桄榔 (*Caryota*).

556.—櫟木 *Li mu.* The *Shan hai king* says that its fruit resembles the 楝 *lien* (*Melia*). Kuo P'o adds that it is also called 簡揀木 *kien kien mu.* The fruit (or seed) is 指頭白 *chi t'ou pai* (finger's white). It is glutinous and employed for washing clothes. The dictionary *Tsi yün* [11th century] says that the fruit resembles a chestnut.

557.—天楩木 *T'ien p'ien mu.* *Shan hai king.* Williams [*Dictionary*, 640] is of opinion that *p'ien* is a kind of soap berry tree, *Sapindus.* But there is no reason for this supposition.

558.—栒木 *Sün mu.* *Shan hai king*, repeatedly. Kuo P'o says it is used for making switches.

559.—白蓇 *Pai kao*, name of a tree. The *Shan hai king* states that it resembles the *ku* (*Broussonetia*) and exudes a sap like varnish, but which can be eaten. It is also used for dyeing jade. According to the *Kuang ya*, another name for *pai kao* is 皐蘇 *kao su.*

560.—芑木 *Yu mu.* *Shan hai king.* A tree resembling the *ch'u* (*Ailantus*), with leaves like those of the *t'ung* (*Paulownia*). Leguminous fruit used for stupefying fish.

561.—蒙木 *Meng mu.* *Shan hai king.* A tree which resembles the *huai* (*Sophora*); yellow flowers. *K.D.* writes 檬 *meng.*

562.—檗木 *Pi mu.* *Shan hai king.* Kuo P'o states that a tree of this name is found in Shu (Sz'ch'uan). In the

seventh or eighth month its panicles are formed, and then it exudes a substance like salt in appearance, which is of a pleasant taste.

563.—竹 *Chu* in ancient times was a general name for Bamboos as in our days. The character is of frequent occurrence in the classical writings. It appears that in the classical period the bamboo was just as indispensable a plant to the Chinese in domestic economy and applied to the same variety of purposes as nowadays. Besides this, in early days, before paper was invented, the Chinese wrote on bamboo tablets (簡 *kien*). Bamboo-sprouts were used as food [*c. supra*, 373]. The wood of the bamboo cut into splints was woven into mats, baskets or hats.

筵 *Yen*, a bamboo mat spread on the ground, and on which they sat in early times at feasts; repeatedly mentioned in the *Shi king* [395, 473, 487]. 簟 *Tien*, a mat of fine bamboo work. *Shi king*, 305. On the rush mat (莞) below and that of fine bamboo above. *Li ki*, II, 185 ["Mourning Rites"]:—The body of a ruler was laid on a mat of fine bamboo (*tien*).

籩 *Pien*, a basket of bamboo-splints, used to contain fruits at sacrifices and feasts. Repeatedly in the *Shi king* [240. 252, 255. 395]. *Chou li*, I, 107:—Employés aux paniers. 簏 *Fei*, round bamboo baskets [mentioned in the *Shu king*, "Tribute of Yü," 99, 117], in which manufactured fabrics, various kinds of silks, etc., from the provinces, were sent to the capital. 笠 *Li*, a hat made of splints of bamboo. *Shi king*, 308, 604.

Many of the Chinese musical instruments were made of bamboo. *Li ki*, I, 120; *Chou li*, I, 407, II, 60, 61; *Ch'un ts'iu*, 300, 301; *Shi king*, 356. Bamboo flute.

Chou li, II, 581:—Bamboo used for bows. [*Cf. supra*, 501, note.]

Li ki, I, 148 :—Vessels of bamboo used in connection with the burial of the dead. II, 43 ["Mourning Rites"] :—Staves of bamboo.

Shi king, 101 :—With your long and tapering Bamboo rods (竹竿) you angle in the 淇 K'i. 92 :—Look at those recesses in the banks of the K'i with their green bamboos (*chu*) so dense together, so strong and luxuriant. 303 :—The palace has arisen firm as the roots of a clump of bamboo, with a roof like the luxuriant head of the pine tree.

P., XXXVII, 18 :—*Chu* Bamboo. *Ch.*, XXXV, 67 : *Kin huang*, LVI, 18.

564.—Besides the general name for the bamboo, *chu*, there appear in the Chinese Classics some other names referring to peculiar sorts of bamboo.

In the *Shu king* [108, "Tribute of Yü," Province of 揚州 Yang chou (present Chekiang, Kiangsu, Anhui)] we read :—After the waters of the marsh of Chin (supposed to answer to the Taihu) had been settled, the bamboos, small and large, then spread about. The Chinese text has 篠 *siao* and 簜 *tang*. K'UNG AN-KUO explains *tang* by 大竹, large bamboo, and *siao* by 竹箭, bamboo good for arrows. K'UNG YING-TA says a small bamboo.

The *Rh ya* [43] identifies *t'ang* with 竹. LI SSU explains :—A bamboo whose joints are 10 feet apart. *Rh ya*, 174, *siao* identified with 箭 [*see further on*].

The dictionary *Tsi yün* [Sung dynasty] notices that there was in ancient 冀 Ye a river Tang which derived its name from the *tang* bamboo. This river has still the same name. The city of Tang yin hien [Northern Honan, Chang te fu] is situated on it.

The *Chu pu*, a treatise on bamboos [3rd or 4th century], states that the *siao* bamboo is produced in 魯 Lu on the 鄒山 Tsou mountain, and that it is used for making musical

instruments (笙管). The Tsou shan was evidently in the district of Tsou hien (Shantung, Yen chou fu).

In the *Chou li* [II, 266, 267] we read:—La province de Yang tcheou produit des bambous de la grande et de la petite espèce. The Chinese text has 竹 *chu* and 箭 *tsien*. CHENG HÜAN says that these terms correspond to *lang* and *siao* in the *Yü kung*.

箭 *Tsien* properly means an arrow. This meaning is also given to it in the *Shuo wen*. But in ancient times this name was also applied to a small bamboo, the stem of which was suitable for making arrows.

In the *Shan hai king*, *tsien* is generally coupled with *chu*, as in the *Chou li* [*l.c.*] and in the *Li ki*, [I, 305 "*Yüe ling*"]:—Second month of winter. When the shortest day has arrived, they fell trees and carry away bamboos and [especially] the small species suitable for arrows (竹箭). *Ibidem*, II, 53 ["Mourning Rites"]:—The hair-pin of the arrow-bamboo (箭笄) was worn by an unmarried daughter for her father to the end of the three years' mourning. *Ibidem*, I, 26:—Arrows and wood for bows. [*See above*, 502].

The *Rh ya* [174] identifies the *tsien* and the *siao*. The *Fang yen* states that *tsien* is the name usual in Kuan si (Shensi), whilst in 江淮 Kiang huai (Chekiang, Anhui) it is called 箾 *ts'u*.

According to the *Chu pu* (treatise on bamboos), the *tsien* does not grow higher than 10 feet. Its joints are 3 feet apart. It is very hard and strong, suitable for making arrows. It is abundantly produced in Kiangnan. The best comes from 會稽 Hui ki (Shao hing fu, Chekiang).

箘 *Kün* and 簵 *lu* are two kinds of bamboo mentioned in the *Shu king* [112, "Tribute of Yü"] as produced in the province of 荊州 King chou (Hupei). K'UNG AN-KUO defines *kün* and *lu* by 美竹 (excellent bamboos); CHENG

Hüan by large and small bamboos. The *Chu pu* says that *kün* and *lu* are two names: the *kün* and the *lu* are Ussel-bamboos, good for arrows. The first is also mentioned in the *Shan hai king*. The name *lu*, according to the *Shuo wen*, is also written 簬 *lu*.

Several other ancient names for bamboos are met with in the *Shan hai king*.

筀竹 *Kui chu*, also written 桂竹 *kui chu*. The *Shan hai king* says it is very poisonous. Kuo P'o explains that this bamboo grows in the district of 桂陽 Kui yang (in Southern Hunan). It is 40 feet high and 1 foot in circumference.

扶竹 *Fu chu*. Kuo P'o says it is the same as the 箘竹 *k'iung*, a bamboo with high (distant) joints; the culm is solid (not hollow); it is fit for walking-sticks, whence the name 扶老竹 *fu lao chu* (bamboo for an old man to lean on).

籦 *Mei*, a bamboo repeatedly mentioned in the *Shan hai king*. Kuo P'o says:—This bamboo now grows in 漢中 Han chung (Southern Shensi); it is thick inside, the joints are distant. Its sprouts, which come out in winter, are eaten by the people. [Comp. *supra*, 373].

See also the bamboos mentioned in the *Rh ya* [169–174].

That is all we know regarding the bamboos mentioned in the ancient Chinese records. Most of those ancient names have most probably disappeared for a long time from the Chinese language.

565.—A. Rivière, in his admirable monograph on bamboos [*Les Bambous;* Paris, 1879] notices 23 species of the tribe *Bambuseæ* (genera *Bambusa, Arundinaria, Phyllostachys*) known to our botanists as coming from China, for the greater part from Canton and Hongkong. But the number of distinct species of bamboos growing in China is, no doubt, much larger. *Phyllostachys nigra*, Munro, *Ph. bambusoides*, S. & Z., *Bambusa nana*, Roxbg., *B. dumetorum*, Hance, are dwarf species

found in China. *Ph. nigra* has a black stem. Perhaps this is the *k'ün* or the *lu* of the *Shu king*. At Canton, this black bamboo, attaining not more than a man's height, is cut down for walking-sticks and handles of parasols. Of tall Chinese species there is the common Indian *Bambusa arundinacea*, Retz (*Arundo Bambos*, L.) and the *Bambusa tuldoides*, Munro, both cultivated at Canton. Bamboos of great dimensions are said to grow in Chekiang [they were noticed there by MARCO POLO, 600 years ago. YULE's edition, II, 203]:—"The largest and longest canes that are in all Manzi; they are full four palms in girth and 15 paces in length." The provinces of Hupei and Sz'ch'uan are likewise famed for their large bamboos. Baron RICHTHOFEN, in one of his *Letters on the Interior Provinces of China*, remarks that nowhere in China does the bamboo attain such a size as in Sz'ch'uan.

Dr. LEGGE [*Shu king*, 103] doubts the correctness of the Chinese statements regarding solid bamboos. European botanists, however, know several bamboos with solid (not hollow) stems. [*See* RIVIÈRE, *l.c.*, 24; LOUREIRO, *Flora cochin.*, 72]. *Arundo* (*Bambusa*) agrestis (of Southern China): internodiis brevibus, intus parum vacuis, sæpe integre solidis. The stem of *Bambusa spinosa*, Roxbg., in India has a very small cavity.

One of the Chinese bamboos, the sprouts of which are used for food, is, according to RIVIÈRE [*l.c.*, 231] the *Phyllostachys mitis* (*Bambusa mitis*, Poir., *Arundo mitis*, Lour.). It is also known in Europe under the name of *Bambusa edulis*.

Many kinds of bamboo are also found in Japan, but as bamboos flower and fruit only once in from 30 to 60 years, the botanical names of the Japanese species have only partly been ascertained.

Amœn. exot., 898 :—竹 *Tsiku*, vulgo *tacke* et *fatsku*. Arundo in genere, et per excellentiam Arundo indica *Bambuus* dicta. Ejus germina, quæ ex radice pullulant sale et aceto macerata, additis allio et Capsici siliquis, inter condita illa, quæ *atsjaar* vocant, principi loco habentur. Radices circa pagum Kusatsu provinciæ Oomi, ob fundi limosi singulare ingenium mira pulchritudine luxuriant; quæ effossæ et a fibrarum verticillis liberatæ, pro bacillis serviunt, quos manibus gestamus, vulgo *rotang* dictos.

Ibidem, 廬竹 (reed bamboo) *rotsikku*, vulgo *najo dacke* item *niga dacke*, *i.e.*, Arundo indica, amara a radicum sapore dicta, fruticescens. The *lu chu* or reed bamboo is mentioned in the *Sün pu* (a Chinese treatise on bamboo-sprouts, 10th century). It is said there to be produced in 廬州 Lü chou (in Anhui). The sprouts are bitter, but can be eaten.

Ibidem, 扶竹 *futsiku*, vulgo *futamma tacke*, *i.e.*, Arundo bifurca. Arundo frutescens caudice bifurca. This Chinese name appears in the *Shan hai king* [v. *supra*] and in the *Sün pu*.

Ibidem, 紫竹 (purple bamboo), *ssi tsiku*, *i.e.*, Arundo plicata, vulgo *murisacki dacke*, *i.e.*, Arundo purpurea; it. *mandara dacke*. Arundo frutescens, caule atro purpureo, tenuiori, farto; foliis brevibus, latius culis, pendulis, plicatis. Perhaps this is the *Bambusa purpurascens* figured in SIEBOLD's *Icon. ined.* [VIII]:—The purple bamboo is said in the *Sün pu* to be produced in Ch'eng tu fu (Sz'ch'uan). It is of a purple colour. Its sprouts are not eaten.

Ibidem, 899 :—篠 *dso*, vulgo *sasa*, it. *si nosa*. Arundo humilis foliis angustis. Sive :—suffrutex foliis arundinaceis. This is the small bamboo of the *Shu king*. [*V. supra*, 564.]

Ibidem, 箬 *coma sasa*. Arundo humilis foliis latioribus. Sive :—Suffrutex foliis arundinaceis latiorius striatis. *Fackona sasa*. Eadem Arundo, montis Fackona, foliis margine et

medio nervo pulchre candicantibus. This is probably *Phyllostachys bambusoides*, S. & Z., var. *allomarginata*, Miq.

The *Phon zo* figures many bamboos under their Chinese and Japanese names.

Siebold [in the *Syn. plant. œcon. jap.*, 17-33] enumerates 17 Japanese bamboos under their Japanese names, and classifies them according to the dimensions, the form and the outside appearance of the stem :—

BAMBUSA.

Sectio A.—*Take*, 竹. Culmo Ramoso Arborescente.

(a.)—*Culmo tereti fistuloso.*

17.—*B. matake.* 苦竹 (bitter bamboo), 江南竹 (bamboo from the Chinese province Kiangnan). Soboles suppeditant baculos quæsitos, ac culmi juniores victum; adulti ad ædificandum fabricandumque vulgo adhibentur.

The *Phon zo* keeps the bitter bamboo and the Kiangnan bamboo apart. LII, 5, 苦竹筍 (bitter bamboo-sprouts) and XCIV, 12, 13, 江南竹.

The bitter bamboo 苦竹 *k'u chu* is noticed in the *Chu pu* or Chinese treatise on bamboos. It is said to be commonly cultivated in China. Its sprouts are of a bitterish sweet taste. There are two sorts, a white and a purple.

18.—*B. metake.* Culmi in conficiendis muris tanquam stratum inserviunt.

This is the *Arundinaria japonica*, S. & Z. *See* Franchet & Savatier, *Enum. plant. Jap.*, II, 182; Rivière, 16, 297.

19.—*B. tootsik.* Culta in hortis. E China introducta.

20.—*B. narihira take.* Culta ad sæpes.

(B.)—*Culmo tereti subsolido.*

21.—*B. sinotake.* Usus ad muros struendum. } Utraque colitur pro sepibus vivis.

22.—*B. suwoo tsik*; var. *tsintsik*. }

Tsintsik is the *Bamb. glaucescens*, Sieb., or *B. floribunda*, Zoll. [*See* FRANCHET & SAVATIER, *l.c.*, II, 183.]

23.—*B. jatake.* 箭竹. Ob usum tritissimum pro jaculis nimirum magni æstimata.

The 箭竹 (arrow bamboo) is figured in the *Phon zo* [XCV, 3, 4]. We have seen [*supra*, 564] that the arrow bamboo is mentioned in the Chinese Classics. [Compare also HENRY, *l.c.*, 238] *Arundo madagascarensis*, Kth.]

(C.)—*Culmo sulcato, fistuloso.*

24.—*B. moo soo.* 南竹 or 江南竹. Species culta ob soboles juniores pro cibo maxime quæsitos. Culmi adulti ad æ lificandum ac fabricandum adhibentur.

Phon zo, XCIV, 12, 13:—江南竹. According to MÈNE [*Productions végétales du Japon*, 1885, p. 28, 182], the bamboos whose sprouts are eaten in Japan are the *moso*, the *madake* [v. *supra*, No. 17], the *ofetchiku*, the *hatchiku* and the *metake* [18]. Of these the *moso* and the *madake* are of large size and empioyed for making various domestic utensils. Perhaps the *moo soo* is the *Bambusa edulis* or *Phyllostachys mitis* [RIVIÈRE, *l.c.*, 231], which is known in China to furnish edible sprouts. Its large stem is sulcated. In Algeria, where it is cultivated, it attains a height of nearly 50 feet.

25:—*B. hatsik.* E lulis, atque pro baculis ad equitandum. Variat culmo variegato, *ooseitsik*.

In the *Icones ined.*, VIII, SIEBOLD figures the *B. hatsik* with the Chinese name 淡竹 (insipid bamboo). Compare the *Phon zo*, LII, 5, 淡竹筍 (edible sprouts); also XCIV,

2, 3. In Chinese works the insipid bamboo, *tan chu*, is mentioned as produced in Chekiang.

MIQUEL gives *hatshiku* as a Japanese name for *Bambusa puberula*. FRANCHET & SAVATIER, *l.c.*, II, 184.

26.—*B. kinmeitsik*. Usus pro sepibus vivis.

This is, according to MIQUEL, the *B. pygmœa*. FRANCHET & SAVATIER, *l.c.*, II, 183.

27.—*B. kurotake*. 荻蘆竹 (reed bamboo). Ob nigriscentem culmi colorem quæsita species.

This is perhaps the *Phyllostachys nigra*, RIVIÈRE [255] or *Bambusa nigra*, Lodd., found in China and Japan. According to FRANCHET it is a variety of MIQUEL's *B. puberula*.

28.—*Bambusa nigamatake*. Pro diversis usitata.

(D.)—*Culmo sulcato subsolido.*

29.—*B. kantsik*. Pro virgis piscatoriis usitata.

(E.)—*Culmo semitereti fistuloso.*

30.—*B. hoteitsik*. Pro baculis.

(F.)—*Culmo tetragono subsolido.*

31.—*B. sikak take*. Tantum in hortis culta.

In SIEBOLD's *Icon. ined.* [VIII] the square bamboo of Japan is figured with the Chinese name 方竹 (square bamboo). *Phon zo*, XCIV, 15, 16.

The 方竹 *fang chu* (square bamboo) is described in the *Pei hu lu* [T'ang dynasty] and in the *Sün pu* as a very hard, solid bamboo with a square stem 2 inches in diameter, used for various domestic purposes. It is good for walking-sticks, but the sprouts are not good for eating.

Interesting details regarding the square bamboo of Wen chou fu, communicated by Dr. MACGOWAN, are found in the

North-China Herald, 1882, p. 306. *See also* RIVIÈRE [315] Bambou carré.

SECTIO B.—*SASA*. CULMO SIMPLICI HERBACEO.

See above the quotation from *Amœn. exot.*, 899, where *sasa* is given as an equivalent for the Chinese classical term 篠 (small bamboo of the *Shu*).

32.—*B. kumasasa* 篳, 山白竹 (white mountain bamboo). Varietas *Fuirino kumsasa* sive *Jakiwasasa*. Culta pro sepibus septisque lacuum.

Compare *supra*, *Coma sasa* in *Amœn. exot.* and in the *Phonzo*, under 篳, XVI, 8, 9. This is the *Bambusa kumasasa*, Zoll., FRANCHET & SAVATIER. *l.c.*, II, 184. But *Phyllostachys bambusoides*, S. & Z., is likewise called *kumasasa* by the Japanese. FRANCHET & SAVATIER, *l.c.*, II, 182. Under the Chinese name 篳 *jo*, *P.* [XV, 75] describes a plant of Southern China which has the appearance of a small bamboo. The young shoots resemble those of reeds. The leaves are dark green, but pale on the under side, soft and fresh at all seasons of the year. The people in the south make hats of them; they are used also for wrapping up tea, salt and balls of cooked glutinous rice. Women put them in the soles of shoes. *W.D.* [296] calls this bamboo *Bambusa latifolia*, an arbitrary identification, for *B. latifolia* is a species from tropical America. According to the *Shuo wen*, *jo* properly means the skin of the bamboo.

33.—*Bambusa ginmei sasa*. Culta pro sepibus septisque lacuum.

566.—楷 *K'iai*. *W.D.* 362:—Name of a straight, graceful and durable tree which grows on the grave of Confucius.

P. does not notice this tree, but *K.K.F.P.* [LXXX, 26] gives a short account of it. See also *K.D.* The 淮南草木譜 *Huai nan ts'ao mu pu* [*K.D.* writes 淮南子草木訓, and it would therefore seem that it is a treatise on the plants mentioned in the *Huai nan tz'*, 2nd century B.C.] states that the *k'iai* tree grows on the grave of K'UNG TSZ'. It is a sort of 柞 *tso* (oak). Its trunk and branches are straight, not crooked; it has a durable wood. The *Shuo wen* says that the *k'iai* is a tree on the grave of CONFUCIUS. The *Yu yang tsa tsu* [9th century] says:—In Shu (Sz'ch'uan) is a tree which resembles the *tso* (an oak). It withers when all the other trees are in blossom, and thrives in winter, and gives shade. The people of Shu call it *k'iai mu*. In the *Shantung t'ung chi* we read that the *k'iai mu*, which grows on the grave of K'UNG TSZ' has a finely grained wood suitable for chess-boards and lances. The young leaves may be eaten as a vegetable, they are also employed like tea. An oil is expressed from the seeds and used for plasters. Of the excrescences of the tree drinking-cups can be made.

In 1873 Dr. J. EDKINS visited the grave of CONFUCIUS near the city of 曲阜 K'ü fou hien in the prefecture of Yen chou fu, Shantung. In a paper devoted to this visit, and published in the *Journal N.C.B.R.A. Soc.* [VIII, 82] he states:—The grave of CONFUCIUS is about 20 feet high and 100 feet in circuit. On it grow pines, acacias and a tree called, from the shining brillancy of its leaves, *shui tsing shu* (crystal tree). Dr. EDKINS transmitted to me a branch of this tree, with long, pinnate, shining leaves. They proved to belong to *Pistacia chinensis*, Bge., a handsome tree met with also in the Peking mountains.

There is yet another tree mentioned by early writers as growing on the grave of CONFUCIUS. In the *Shi ki* or Historical Records collected by SZ'-MA T'AN in the 2nd century B.C., in an account of CONFUCIUS' lineage, there is a notice stating that on the grave of the sage grows the 橎檀之樹 *ch'an t'an* tree. Regarding *t'an* [*v. supra*, 540]. SZ' MA SIANG JU [† B.C. 126] in his poem *Shang lin yüan fu*, says that the *ch'an t'an*, is the same as the 木蘭 *mu lan*, which latter name is now applied to a Magnolia. [*V. supra*, 551. See also *K.D.*]

567.—模 *Mu.* The above-mentioned *Huai nan ts'ao mu pu*, which speaks of the *k'iai* tree growing on the grave of CONFUCIUS, reports that on the grave of 周公 CHOU KUNG grows the *mu*, a tree whose leaves are green in spring, red in summer, white in autumn and black in winter. [See *K.D.*]

CHOU KUNG, the famous Duke of Chou, the younger brother of WU WANG, the founder of the Chou dynasty, died in B.C. 1105, and was buried in Peih, near the present Si an fu (Shensi). [*See* LEGGE'S *Shu king*, 535.]

568.—We read in the *Li sao* [34] :—Les guides de mon attelage ont été attachées aux branches du *fou sang* (扶桑). J'ai pris un rameau de l'arbre *jo* (若木) pour l'opposer au soleil.

Fu sang was the name of a fabulous tree behind which the sun was supposed to rise. It is also mentioned in TUNG FANG-SO's *Shi chou ki* [2nd century B.C.] and other ancient works. The *Shan hai king* writes 榑木 *fu mu.* KUO P'O explains it by 扶桑. [*See also* my article "Das Land *Fu sang*," in *Mittheil. d. Deutschen Gesellsch. f. Natur- u. Völkerkunde Ostasiens*; Yokohama, Heft 11, 1876.

In Chinese botanical works the name *fu sang* is applied to *Hibiscus Rosa sinensis*, L., a beautiful ornamental shrub

cultivated in Southern China. *P.*, XXXVI, 45. *Ch.*, XXXV, 58. It is the same in Japan. *Phon zo*, XC, 10–14, 扶桑, *Hibiscus Rosa sinensis*. But this plant has nothing to do with the *fu sang* of the *Li sao* and the *Shi chou ki*.

569.—The 若 *jo* tree mentioned in the *Li sao* together with the *fu sang*—the name is also written 楉—is likewise a fabulous tree. This name appears also in the *Huai nan tsz'*, the *Shan hai king* and other ancient works. In the *Shan hai king* it is stated to grow out from another tree, the 搖木 *yao mu*.

570.—迷穀 *Mi ku*, a fabulous tree of the *Shan hai king*, which resembles the *ku* (*Broussonetia*). Its wood is black, its flowers emit four rays of light (其花四照). Who wears about himself [a branch of this tree] keeps the right road [佩之不迷].

571.—*Li sao*, 39 :—Je cueillais une branche de l'arbre *kiong* (瓊枝) pour enrichir ma ceinture. The same, p. 59.

K'iung is properly a fine kind of jadestone. [*See* the *Shi king*, 152]. But the name was also applied to a fabulous tree. [*See* the legend of the *k'iung* tree in MAYERS' *Chinese Reader's Manual*, 317.]

GENERAL REMARKS BY DR. E. FABER.

NEW JAPANESE BOTANICAL WORKS.

As Dr. BRETSCHNEIDER refers only to older Japanese identifications, the student will receive great advantage from comparing the latest, and probably best, Japanese identifications by J. MATSUMURA, supervised by R. YATABE, Tokyo, 1884. As there was not room enough in the notes, all the rest of the Chinese and corresponding scientific names, according to MATSUMURA, will be found in the Appendix. I had some difficulty and several months delay in procuring MATSUMURA's work in Shanghai, hence reference to it could only be made from p. 35 of this publication. During a short visit to Tokyo I found some other useful Japanese works bearing on this subject :—

A Catalogue of Plants in the Herbarium of the College of Science, Imperial University; Tokyo, 1886.

The arrangement follows the natural orders without any alphabetical convenience. The Chinese names agree, with a few exceptions, with MATSUMURA's. There are, however, a few more Chinese names. Plants not indigenous are distinguished by smaller type.

Tabula Ordinum Plantarum Naturalium, by MANABY MIYOSHI; Tokyo, 1888.

This is a useful sheet of the names of all the natural orders in Latin, Chinese and Japanese. The Phanerogams are classified according to BENTHAM and HOOKER, the Cryptogams according to GŒBEL's *Grundzüge der Systematik.*

A Glossary of the Botanical Terms; Tokyo, 1891.

A Text-Book of Botany, 2 Vols.

生藥學. 2 Vols. A Pharmacopœia. Many scientific terms are given both in Latin and Chinese.

藥用植物學. Elementary Botany. A kind of Introduction to the former work.

日本樹木誌略. 100 fine lithographs of trees and their wood, showing the fibre. Names are given in Japanese, Chinese and Latin. Description, etc., is in Japanese.

草木花實寫真畵譜. 4 Vols. Colored drawings of plants. Japanese and Chinese names. The scientific names are defective. Short descriptions in Japanese.

Authorities for Chinese Identifications.

We regret that the Japanese authors do not state the authorities for their Chinese identifications. If we knew only of Matsumura's excellent vocabulary the impression would be unavoidable that all Japanese and Chinese writers are in perfect agreement on every point. The quotations given by Dr. Bretschneider compared with the Notes by Dr. Faber reveal the real state of things. Some Chinese names of plants not indigenous to Japan have been applied to other species and even to other genera in Japan. A large number of Chinese names are not confined to one species only, in China, but are applied to different plants in different localities and by different authors. One and the same plant also bears several names in books as well as among the people. This is even the rule, with very few exceptions. We cannot avoid confusion, if this fact is ignored.

The best method will be to take the Chinese geographical works as the basis for determining the best Chinese names. There is one voluminous geographical-statistical record for each province, and most of the prefectures have a more detailed work of their own, called 府志, commonly also in many volumes. The chapter on "produce," 物產, contains the names of all plants known within the prefecture, and the information given under each name is the most reliable that can be gleaned from Chinese sources. Wherever procurable, a comparison with separate works on districts, 縣志, will be of advantage.

Chinese Drawings of Plants.

Two or more drawings of distinct plants are sometimes given under one name. Very few of the figures in the Imperial Encyclopedia are drawings from nature, but most are copies of earlier copies, which were copies of other copies. It is not surprising, therefore, that many figures appear more or less disfigured. The authors were commonly more familiar with books than with nature, and the block-cutters had no understanding of either. In comparing a common later edition of the *Pen tsao* with the photo-lithographed

reprint of one dated 1657, the student will be struck with the contrast. It shows the importance of tracing the original editions of plates. This is no easy task in China. Editions of the Ming period are already rare and expensive; those of the Sung and T'ang periods are, as a rule, beyond the reach of ordinary mortals. The expression "a good figure" must not mislead the reader. None of the Chinese drawings exhibit botanical details. The best figures are mere outlines, but are recognisable when the plant is known. The greater number of inferior figures might belong to a dozen and more distinct plants.

Chinese Names.

The Chinese have never shown any inclination for exploring nature from a love of knowledge. No trace can be found of a scientific tendency in all they have written on plants. They have named many plants, only because they could not do otherwise. Named among the ten thousand Chinese plants are such only as are in use among the people and which were in use long before a name was thought of.

The peculiar names of the *Rh ya* given in explanation of more ancient names point probably to different languages. A comparison with the philological statements of the *Fang yen* [*vide* this Journal Vol. XVI, p. 145, No. 106] might lead to a determination of their respective localities. The difficulty, however, of fixing the ancient pronunciation of the respective written characters must not be overlooked. We are dependent on modern analogies. The explanation of ancient names, already obsolete 2,000 years ago, is mere guess-work without value. Most of Kuo P'o's remarks belong to this kind.

Though it is of scientific interest to find out the botanical determination of ancient names, it is not less of scientific interest, and of considerable practical value, to determine every kind of material from the vegetable kingdom used in China at present and to verify the names employed in authoritative modern Chinese works, especially in the *Pen ts'ao*.

Ancient Names.

The following almost complete list of Chinese names of plants which have remained unchanged from ancient classical times will be of interest to the student.

Ancient Names still in Use.

[*The Nos. refer to Dr. Bretschneider's Nos. in this volume.*]

7.—朮 *shu, Atractylis.*
13, 431.—蒿 *hao, Artemisia annua.*
15, 436.—蓬 *p'eng, Erigeron.*
42.—筍 *sün, Bamboo-sprout.*
45.—苨 *ni, Adenophora.*
64.—蘇 *su, Perilla.*
77, 429.—艾 *ai, Artemisia vulg.*
99, 395.—荷 *ho, Nelumbium.*
113.—萍 *p'ing,* Water-plant *(Monochoria?)* [*V.* 400.]
114, 400.—蘋 *p'in, Marsilea.*
116, 370.—芹 *k'in, Œnanthe.*
124, 397.—菱 *ling, Trapa.*
162.—菌 *kün,* Mushroom.
185, 377.—蕨 *küe, Pteris aquilina.*
210, 455.—葦 *wei, Phragmites.*
227, 473.—梅 *mei, Prunus Mume.*
236, 487.—柚 *yu, Citrus decumana.*
252, 523.—楊 *yang, Populus.*
257, 526.—杞 *k'i, Lycium.*
261.—楓 *feng, Liquidambar.*
272, 484.—棗 *tsao,* Jujube.
289, 546.—槐 *huai, Sophora.*
301, 481.—梨 *li, Pyrus.*
304, 528.—榆 *yü, Ulmus.*
328, 499.—桑 *sang, Morus.*
328, 524.—柳 *liu, Salix.*
337.—稻 *tao, Oryza,* Rice.
339.—麥 *mai, Triticum, Hordeum.*
341.—黍, 稷, *Panicum miliaceum.*
355.—菽 *shu, Leguminosæ.*

357.—葱 *ts'ung, Allium fistulosum.*
362.—芥 *kiai, Brassica sinapis.*
368.—葵 *k'ui, Malva,* etc.
371.—堇 *kin, Viola.*
375.—蒲 *p'u, Typha.*
376.—菖 *ch'ang,* Acorus.
378.—薇 *wei, Osmunda.*
380.—芝 *chi, Fungus.*
381.—薑 *kiang,* Ginger *(Alpinia).*
382.—瓜 *kua,* (Melon) *Cucurbitaceæ.*
384.—瓠 *hu,* 匏 *p'ao, Lagenaria.*
388.—麻 *ma,* Hemp, *Cannabis,* etc.
390.—葛 *ko, Pueraria Thunbergiana.*
391.—紵 *chu, Bæhmeria.*
392.—藍 *lan, Polygonum tinctorium.*
396.—芡 *k'ien, Euryale.*
399.—荇 *hing, Limnanthemum.*
401.—藻 *tsao, Ceratophyllum,* etc.
403.—勺藥 *sho yo, Pæonia albiflora.*
404.—鞠＝菊 *kü, Chrysanthemum.*
410.—芷 *chi, Angelica.*
413.—藁本 *kao pen, Nothosmyrnium jap.*
422.—半夏 *pan hia, Pinellia.*
428.—薯 *shi?*
446.—藜 *li, Chenopodium.*
447.—芩 *k'in, Scutellaria.*
453.—蘞 *lien, Vitis.*
455.—蘆 *lu, Phragmites.*
459.—茅 *mao, Imperata.*
470.—桃 *t'ao,* Peach.
471.—杏 *hing,* Apricot.
472.—李 *li, Prunus domestica.*
478.—木瓜 *mu kua, Cydonia.*
485.—棘 *ki, Zizyphus* (wild).

486.—橘 *kü*, Orange.
488.—枳 *chi*, *Citrus fusca?*
489.—枸 *kü*, *Hovenia.*
491.—柿 *shi*, *Diospyros.*
494.—栗 *li*, *Castanea.*
496.—榛 *chen*, *Corylus.*
497.—椒 *tsiao*, *Zanthoxylon.*
501.—柘 *che*, *Cudrania.*
503.—穀 *ku*, *Broussonetia.*
504.—松 *sung*, *Pinus*, etc.
505.—柏 *po*, *Thuja.*
512.—枏 or 楠 *nan*, *Machilus.*
513.—章 or 樟 *chang*, Camphor.
515.—桐 *t'ung*, *Paulownia.*
516.—梧 *wu*, *Sterculia platanifolia.*
517.—漆 *ts'i*, *Rhus vernicifera.*
518.—樗 *ch'u*, *Ailanthus.*
521.—荆 *king*, *Vitex.*
527.—檉 *ch'eng*, *Tamarix.*
531.—樸 *p'o*, *Celtis.*
534.—櫟, 柞 *li*, *tso*, *Quercus.*
550.—欄 *lan*, *Magnolia.*
552.—桂 *kui*, *Cinnamomum.*
555.—椶 *tsung*, *Chamærops.*
563.—竹 *chu*, Bamboo.

Conspicuous in this list is the large number of trees, fruit-trees as well as timber-trees, and the absence of powerful medicines. Does this fact indicate that it was not the Chinese who found out the important use of poisonous plants in medicine, but that they were taught such use by foreigners, and afterwards discovered plants, indigenous to China, possessing similar qualities?

Discrepancies explained.

The discrepancies between the figures and descriptions of Chinese publications, ancient and modern, as also of books in general and

present mercantile usage, can be explained in a simple way. Though some knowledge of drugs and their use has been universal in China, a good number of the corresponding medicinal plants were never known to any but a few collectors of plants. They kept their knowledge as a secret by which they gained their profits. As it might happen that the few expert collectors vanished in times of war or through other calamities, their secret perished with them. Other persons tried afterwards, with more or less success, to repair the loss. If the effects of their drugs were found similar to those lost, the differences (appearance and former description) would be overlooked. It might also happen that the supply became exhausted, through extermination of the plant, at one particular locality or in general. The nearest substitute had then to take its place. Moreover, attempts were often made to introduce a cheaper drug from the neighbourhood for an expensive one from a distance, and in many cases with success. It would happen, too, that a drug found to be of a similar but better effect would displace another long known, and probably receive the recognized old name. Dishonesty on the part of those concerned in the trade had, of course, a considerable share in the causes of the present confusion. Inadequate botanical knowledge made exposure almost impossible. New names were also started, partly by misprints and insufficient knowledge of the written characters among practitioners, partly by the differences of pronunciation in different parts of China.

Chinese Classification.

Though the Chinese have written many volumes on plants, during a time of more than two thousand years, and have accumulated between three and four thousand names of plants (including synonyms), they have never made an attempt toward a scientific treatment of botany. Their descriptions are vague and often contradictory, commonly useless except the plant be already known. All attempts at classification are on the basis of usage, not founded on botanical properties.

The various names given in the Imperial Encyclopedia at the head of each family, sometimes in great number, and called *synonyms* in my notes for brevity's sake, are in many cases names given to distinct plants by other Chinese authors, sometimes even to plants of different orders, but commonly to other species of the same genus, to other genera of the same order, or to plants of the same usage.

Geographical Distribution.

China has not yet been satisfactorily explored by botanists. Well known are only the regions around Peking, Chefoo, Canton, Shanghai, Ningpo, Kiukiang, I-chang, Omei Mountain, Newchwang, Moukden, and Long White Mountain. Though plants have been collected from other parts of China, this has been done only episodically, not as an exploration of the whole field. We may boldly say that hundreds of undescribed plants can still be found in China. As long as exploration is not nearer completion, we cannot expect an accurate knowledge of the geographical distribution of plants in China. We do not even know the limits of the spontaneous growth of bamboo, nor of the cultivation of rice, of the mulberry tree to rear silkworms, of the peach, citrus, etc. The table in *Plantæ Davidianæ,* Vol. II, wherein Moupine, Kiangsi, Shensi, S. Mongolia and Peking are put in parallel columns, the *Index Floræ Sinensis,* which is more comprehensive, but only about one-half published, and a *List of Chinese Medicines,* published by order of the Inspector General of Customs, where the place of production is (approximately) stated, are valuable contributions in this line. Much valuable information might be gleaned from the Chinese geographical works already referred to.

Some Chinese authors venture farther and mention the place where the plant originally came from. We may take this in the sense of the first discovery of the plant or that its use spread from the place mentioned. See, for example, *San ts'ai t'u hui* (quoted = *S.*). The botanical portion of this encyclopedia is by 王思義, the second son of Wang K'e 王圻 [*v* Wylie, 56, 149].

A Desideratum.

Indispensable to every botanist in China is the *Index Floræ Sinensis,* a work of great merit, published by F. B. Forbes and W. B. Hemsley at Kew. It appears in portions and is progressing very slowly. We may, however, soon expect Vol. II finished. This brings us to the end of *Dicotyledons.* Vol. III will have to deal with *Monocotyledons* and *Cryptogams.* Another volume is required to supplement the first two. This work is not restricted to a mere dry enumeration of the scientific names of all the Chinese plants known. Reference is made to every description and illustration of a plant in botanical works. The geographical distribution is mentioned, as regards China, for Chili,

Manchuria, Shantung, Kiangsu, Chekiang, Fokien, Formosa, Pescadores, Kuangtung, Hongkong, Hainan, Yunnan, Szechuan, Kansuh, Hupeh, Kiangsi; and as regards other countries, for Corea, Japan, Luchu Islands, Siberia, India, etc. This is most valuable information. One of the greatest merits of the Index, however, is the reduction of a large number of synonymic, or else useless, determinations. For example, *Rhododendron indicum*, Sw., is now relieved of 25 botanical names. Descriptions are confined to new species and to a few new genera. As no key is given to the Chinese genera of each order and to the species mentioned in the Index, and no complete botanical library is available in China, this work cannot assist to determine any plant unknown to us, though it may be mentioned in the book. The aim of the Index is another. We need along with it a short *Handbook of Chinese Botany*, or BENTHAM'S *Flora Hongkongensis* enlarged to *A Flora Sinensis*. Introductory matter could be reduced and description be made as short and characteristic as possible.

Classification will remain partly unsatisfactory till all plants of the globe are known and time can be given to closer observation and more minute investigation of every species in a genus and of every genus in an order. Soil, elevation, moisture, light and air in their innumerable differences and varying combinations are so many conditions which modify the typical form of a plant. Cultivation has shown the great extent of variation in some species. Observation of wild species is limited. Many differences, now regarded as sufficient to establish a distinct species, may mark only variations. Genera, too, with only one or two species attached to their fame and fate, will be recognized by a critical specialist as extreme forms of some older genera. Very few of the Chinese species are in every respect identical with specimens of the same species in Europe or America. The present difficulties of determining plants in China would be considerably removed if the above-mentioned Desideratum could be realised.

APPENDIX.

Chinese Names of Plants, identified in Japan, classified under their Natural Orders and arranged alphabetically.

ACANTHACEÆ.—水蓑衣科.

Jap., 796, *Dicliptera Buergeriana*, Miq., 九頭師子草.

„ 1116, *Hygrophila lancea*, Miq., 水蓑衣.

Justicia procumbens, L., 爵牀.

„ 1925, *Rostellularia procumbens*, Nees, 鯽魚鱗.

„ 2158, *Strobilanthes oliganthus*, Miq., 紫雲菜.

ALISMACEÆ.—澤瀉科 [*Alisma*, v. 437].

Jap., 1962, *Sagittaria sagittæfolia*, L. 慈姑.

AMARANTACEÆ.—莧科.

Jap., 40, *Achyranthes bidentata*, Bl., var. *japonica*, Miq., 牛膝.

„ 125, *Amarantus caudatus*, L., 老鎗穀.

„ 126, „ *mangostanus*, L., 莧.

„ 127, „ *melancholicus*, L., var. *tricolor*, Lam., 雁來紅. *V. Apocyn.*

„ *spinosus*, L., 假莧菜.

„ *viridis*, L., 野蒿.

„ 544, *Celosia argentea*, L., 青箱.

„ 545, „ „ var. *cristata*, Bth., 雞冠.

„ 933, *Euxolus viridis*, Moq., 野莧.

„ 1038, *Gomphrena globosa*, L., 千日紅.

AMARYLLIDEÆ.—石蒜科.

Jap., 130, *Amaryllis Belladonna*, L., 鹿葱.

„ 701, *Crinum asiaticum*, L., var. *declinatum*, Kth., 文珠蘭.

„ 1125, *Hypoxis minor*, Don., 仙茅.

„ 1358, *Lycoris radiata*, Herb., 鐵色箭.

Jap., 1483, *Narcissus jonquilla*, L., 長壽花.

„ 1484, „ *Tazetta*, L., var. *chinensis*, Rœm., 水仙.

„ 1496, *Nerine japonica*, Miq., 石蒜 (*Lycoris radiata*, H.).

Polianthes tuberosa, L., 月下香.

AMPELIDEÆ.—葡萄科. [*V.* 453.] *Vitis inconstans*, 常春藤.

V. labrusca, L., 野葡萄.

ANACARDIACEÆ.—漆樹科. [*V.* 517.] *Rhus Osbeckii*, 野麩子.

ANONACEÆ.—番荔枝科.

Jap., 176, *Anona Squamosa*, L., 番荔枝.

APOCYNACEÆ.—夾竹桃科.

Jap., 139, *Amsonia elliptica*, Rœm. & Schult., 水甘草.

„ 1497, *Nerium odorum*, Soland., 夾竹桃.

„ 2215, *Trachelospermum jasminoides*, Bth. & Hkr., 絡石 (白花藤). (In 皇青經解 book 552 pp. 26–28 are good figures and a long discussion about its name 芄蘭, *v. supra*, 93, 468).

„ 2325, *Vinca rosea*, L., 鴈來紅 (長春花). *V. Amar.*

ARALIACEÆ.—五加科. [*V.* 511.]

Hedera Helix, L., 百脚蜈蚣 differs.

ARISTOLOCHIACEÆ.—馬兜鈴科.

Jap., 213, *Aristolochia debilis*, S. & Z., 馬兜鈴 (*A. Kæmpferi*, Willd.; *A. debilis*, S. & Z., 土青木香).

„ 235, *ff. Asarum* [*v.* 156, 414].

AROIDEÆ.—天南星科, *Acorus* [*v.* 376].

Jap., 116, *Alocasia macrorhiza*, Schott, 海芋.

Amorphophallus, Bl., 蒟蒻.

„ 209-212, *Arisæma* [*v.* 422].

„ 652, *Colocasia antiquorum*, Schott, 芋.

„ 657, *Conophallus Konjak*, Schott, 蒟蒻.

„ 1260, *Leucocasia gigantea*, Schott, 白芋.

„ 1360, *Lysichitum camtschatense*, Schott, 觀音蓮.

Pinellia [*v.* 422].

„ 1912, *Richardia africana*, Kth., 野芋.

„ 2164, *Symplocarpus fœtidus*, Salisb., 地湧金蓮.

ASCLEPIADACEÆ.—白前科. [*Vide* 468 and 378.] (*Endotropis* = *Cynanchum*.)

Asclepias curassavica, L., 馬利筋.

Jap., 2327, *Vincetoxicum amplexicaule*, S. & Z., 合掌消.

BEGONIACEÆ.—秋海棠科.

Jap., 326, *Begonia Evansiana*, Andr., 秋海棠.

BERBERIDEÆ.—目木科.

Jap., 91, *Akebia quinata*, Decne, 通草 (*Lardizabaleæ*).

„ 331, *Berberis japonica*, R. Br., 十大功勞.

„ 332, „ *Thunbergii*, DC., var. *typica*, Reg., 小蘗.

„ 334, „ *vulgaris*, L., 大黃連 [*v.* 447].

„ 813, *Diphylleia Grayi*, Fr. Schm., 山荷葉.

„ 871, *Epimedium macranthum*, Morr. et Dcn, 淫羊藿.

„ 1481, *Nandina domestica*, Thbg., 南燭, 南天竹.

„ 2144, *Stauntonia hexaphylla*, Dcne, 野木瓜 (*Lardizabaleæ*).

BIGNONIACEÆ.—紫葳科. [*Vide* 164, 292.]

BIXINEÆ.—椅科.

Jap., 1055, *Gynocardia odorata*, R. Br., 大風子.

„ 1126, *Idesia polycarpa*, Max., 椅.

„ 2389, *Xylosma racemosa*, Miq., 柞木 [*v.* 534].

BORAGINEÆ.—紫草科 [*v.* 142].

Jap., 838, *Ehretia serrata*, Roxb., 松楊.

„ 896, *Eritrichium pedunculare*, DC., 附地菜.

BROMELIACEÆ.—鳳梨科.

Jap., 379, *Bromelia Ananas*, L., 鳳梨.

BURSERACEÆ.—橄欖科.

Jap., 439, *Canarium commune*, L., 橄欖.

CALYCANTHACEÆ.—蠟梅.

Jap., 578, *Chimonanthus fragrans*, Ldl., 蠟梅.

„ 579, „ „ *forma latifolia*, 檀香梅.

CAMPANULACEÆ.—桔梗科.

Adenophora verticillata, Fr. & S., 沙參.

„ *polymorpha*, Ldl., var. *alternifolia*, Fr. & S., 杏葉沙參.

Adenophora trachelioides, Max., 薺苨 [*v.* 45].
Campanumœa japonica, Max., 金錢豹.
Jap., 436, *Campanula punctata*, Lam., 山小菜.
Codonopsis lanceolata, Bth. & H., 土黨參.
„ 1025, *Glossocomia lanceolata*, Reg., 羊乳.
„ 1176, *Isolobus radicans*, DC, 半邊蓮.
Lobelia radicans, Thbg., 半邊蓮.
„ 1313, *Lobelia sessilifolia*, Lamb., 山梗菜.
Platycodon grandiflorum, ADC., var. *glaucum*, S. & Z., 桔梗 [*v.* 45].
„ 2377, *Wahlenbergia marginata*, DC., 細葉沙參.

CAPPARIDEÆ.—白花菜科.

Jap., 1054, *Gynandropsis viscida*, Bge., 白花菜 [*v.* 468].

CAPRIFOLIACEÆ.—忍冬科.

Jap., 800, *Diervilla grandiflora*, S. & Z., 錦帶花 (*D. japonica*, DC.).
„ 803, „ *versicolor*, S. & Z., 楊櫨, (*D. grandiflora*, S. & Z.).
„ 1319, *Lonicera gracilipes*, Miq, 驢駝布袋.
„ 1320, „ *japonica*, Thbg., 忍冬.
„ 1985, *Sambucus racemosa*, L., var. *Sieboldiana*, Miq., 接骨木.
„ 1986, „ *Thunbergiana*, Bl., 蒴藋.
„ 2239, *Triosteum sinuatum*, Max., 獨用將軍.
„ 2304, *Viburnum dilatatum*, Thbg., 莢蒾.
„ 2307, „ *japonicum*, Spr., 堅莢樹.
„ 2309, „ *Opulus*, L., 山樂樹 (雪秫).
„ 2312, „ *Sieboldi*, Miq., 土樂樹.
„ „ *tomentosum*, Thbg., 蝴蝶戲珠花.

CARIOPHYLLEÆ.—石竹科.

Jap., 554, *Cerastium vulgatum*, L., var. *glandulosum*, Koch., 卷耳.
„ 708, *Cucubalus baccifcrus*, L., var. *japonicus*, Miq., 狗筋蔓.
„ 787, *Dianthus chinensis*, L., 石竹.
„ 790, *Dianthus superbus*, L., 瞿麥.

Jap., 1341, *Lychnis grandiflora*, Jacq., 前夏羅(翦春羅).

„ 1341, „ „ „ *forma calicibus pilosis*, 前春羅.

„ 1343, „ *Senno*, S. & Z., 前秋羅.

Melandryum firmum, Roxb, 女婁菜.

„ 1960, *Sagina maxima*, A. Gray, 漆姑草, 瓜槌草.

„ 1993, *Saponaria Vaccaria*, L., 王不留行.

„ 2151, *Stellaria uliginosa*, L., 雀舌草. *St. aquatica*, Scop., 繁縷.

CELASTRINEÆ.—衛矛科.

Jap., 905, *Euonymus alatus*, Thbg., 衛矛.

„ 907, „ *europæus*, L., var. *Hamiltonianus*, Max., 桃葉衛矛.

„ 909, „ *japonicus*, Thbg., var. *radicans*, Miq., 扶芳藤.

„ 2243, *Tripterygium Wilfordii*, Hk. f, 昆明山海棠.

CERATOPHYLLEÆ.—聚藻科 [*v.* 401].

CHENOPODIACEÆ.—藜科 [*v.* 446, *Kochia*, *v.* 9]. *Suæda maritima*, Dumort, var. *asparagoides*, Fr. & S., 鹹蓬.

CHLORANTHACEÆ.—金粟蘭科.

Jap., 583, *Chloranthus brachystachys*, Bl, 草珊瑚.

„ 584, „ *inconspicuus*, Sw, 金粟蘭.

„ 585, „ *japonicus*, Sieb., 水晶花, 銀線草.

Chl. serratus, R. & Sch., 及已.

COMBRETACEÆ.—使君子科.

Jap., 1851, *Quisqualis indica*, L., 使君子.

COMMELYNEÆ.—鴨跖草科.

Jap., 152, *Aneilema oliganthum*, Fr. & S., 水竹葉.

„ 654, *Commelyna communis*, L., 鴨跖草.

„ 1677, *Pollia japonica*, Hornst., 杜若.

COMPOSITÆ.—菊科.

Jap., 39, *Achillea* [*v.* 428].

„ 55, *Adenocaulon adhærescens*, Max., 和尙菜.

Jap., 177, *Anthemis nobilis*, L., 加蜜列.
Arctium Lappa, L., 牛蒡.
„ 217, *ff. Artemisia* [*v.* 429].
„ 283, *Aster fastigiatus*, Fisch et Mey., 女菀.
„ 285, „ *hispidus*, Thbg., var. *mesochætus*, Fr. & S., 鐵梗蒿.
„ 290, „ *scaber*, Thbg., 東風菜.
„ 292, „ *tataricus*, L., 紫菀.
„ 294, „ *trinervius*, Roxb. [*v.* 405].
„ 295, „ „ Roxb., var. *ovata*, Fr. & S., 野粉團兒.
„ 297, „ *Tripolium*, L., 金蓋菜.
„ 304, *Atractylis lancea*, Thbg., 蒼朮.
„ 305, „ *ovata*, Thbg., 蒼朮.
„ 346, *Bidens pilosa*, L., 鬼鍼草.
„ 347, *Bidens tripartita*, L., 狼把草 [*v.* 155].
„ 362, *Boltonia* (*Aster*) *cantoniens*, DC., (Bl.), 雞兒腸.
„ 364, „ „ *incisa*, Bth. (Fisch), 六月菊.
„ 414, *Calendula officinalis*, L., 金蓋草.
„ 419, *Callistephus chinensis*, Nees., 翠菊.
„ 461, *Carduus crispus*, L., 飛廉.
„ 516, *Carpesium* [*v.* 35]. (*C. divaricatum*, S. & Z., 狗兒菜.
„ 526, *Carthamus tinctorius*, L., 紅藍花.
Centipeda orbicularis, Lour., 石胡荽.
„ 587, *Chrysanthemum coronarium*, L., 茼蒿.
„ 635, *Cnicus jap.*, *C. oval* [*v.* 62].
„ 641, „ *pectinellus*, Max., 雞頂草.
„ 644, „ *spicatus*, Max., 大薊.
„ 699, „ *Crepis japonica*, Bth., 黃鶴菜.
Dichrocephala latifolia, DC., 茯苓菜.
„ 834, *Echinops sphærocephalus*, L., 單州漏蘆.
„ 835, *Eclipta alba*, Hassk., 鱧腸.
„ 886, *Erigeron* [*v.* 436].

Jap., 913, *Eupatorium* [*v.* 405].

„ 1011, *Gerbera anandria*, Schultz, 大丁草.

„ 1035, *Gnaphalium multiceps*, Wall., 鼠麴草.

„ 1037, „ *yedoense*, Fr. & S., 蒿 [*v.* 435] (*Anaphalis yed.*).

„ 1057, *Gynura pinnatifida*, DC., 三七 (土三七).

„ 1070, *Helianthus annuus*, L., 向日葵.

„ 1150, *Inula britanica*, DC., var. *vulgaris*, Lad., 旋覆花.

„ 1151, „ *Halenium*, L., 土木香.

„ 1181, *Ixeris debilis*, Gray., 剪刀股.

„ 1185, „ *Thunbergii*, Gray., 黃瓜菜.

„ 1219, *ff. Lætuca* [*v.* 24].

„ *Sororia*, Miq., 山苦蕒.

„ *debilis*, Bth., 剪刀股.

Lampsana apogonoides, Max., 稻槎菜.

„ 1231, *Lappa major*, Gærtn., 牛蒡 = *Arctium*.

„ 1377, *Macroclinidium verticillatum*, Fr. et Sav., 鬼督郵.

„ 1469, *Myriogyne minuta*, Less., 石胡荽.

„ 1593, *Petasites* [*v.* 160].

„ 1630, *Picris japonica*, Thbg., 毛連菜.

„ 1808, *Pyrethrum Decaisneanum*, Max., 千年艾.

„ 1809, „ *indicum*, Cass., 野菊.

„ 1997, *Saussurea Bungei*, Bth., 泥胡菜 (野苦麻).

Scorzonera hispanica, L., 鴉葱.

„ 2056, *Senecio campestris*, DC., 狗舌草.

„ 2060, „ *japon.* [*v.* 56].

„ 2061, „ *Kæmpferi*, DC., 蒿吾 (also 款冬花).

„ 2062, „ *Krameri*, Fr. et S., 兎兒傘.

„ 2065, „ *palmatus*, Pall., 劉寄奴草.

„ 2078, *Siegesbeckia* [*v.* 35].

„ 2106, *Solidago Virgaurea*, L., 一枝黃花.

„ 2108, *Sonchus* [*v.* 24]. (*S. oleraceus*, L. 續斷).

„ 2171, *Tagetes erecta*, L., 萬壽菊.

„ 2172, „ *patula*, L., 藤菊.

Jap., 2177, *Taraxacum officinale*, Wigg., var. *corniculatum*, Koch & Ziz., 蒲公英.

„ 2388, *Xanthium*. [*V.* 184, 438.]

CONIFERÆ.—松柏科 [*v.* 504-507].

Thuja obtusa, S. & Z., 扁柏.

„ *pisifera*, Bth. et Hk., 花柏.

Cryptomeria, *Cunninghamia* and *Torreya* [*v.* 228, *Pinus*. *V.* 504.]

CONVOLVULACEÆ.—旅花科.

Convolvulus [*v.* 442].

Cuscuta japonica, Chois., *v.* 131, etc.

Jap., 1153, *Ipomæa Batatas*, Lam., 甘藷.

„ 1154, „ *bona-box*, L., 天茄兒.

„ 1156, „ *hederacea* [*v.* 379].

„ 1158, „ *Quamoclit*, 蔦蘿.

„ *triloba* (*Pharbitis*), Miq., 牽牛子.

CORIARIEÆ.—木本鈎吻科.

Jap., 676, *Coriaria japonica*, A. Gray, 木本黃精葉鈎吻.

CORNACEÆ.—山茱萸科.

Jap., 309, *Aucuba japonica*, Thbg., 桃葉珊瑚.

„ 678, *Cornus kousa*, Buerg., 羊婆奶.

C. officinalis, S. & Z., 山茱萸.

„ 1397, *Marlea platanifolia*, S. & Z., 八角楓.

CRASSULACEÆ.—景天科.

Jap., 692, *Cotyledon spinosa*, L., 昨葉何草.

„ *malacophylla*, Pall., var. *japonica*, Fr. & S., 石蓮華.

„ 1586, *Penthorum sedoides*, L., 扯頭菜.

„ 2041, *Sedum erythrostictum*, Miq., 景天.

„ 2043, „ *kamtschaticum*, Fisch., 費菜.

„ *lineare*, Thbg., 佛甲草.

CRUCIFERÆ.—十字花科.

Jap., 141, *Anastatica Hierochuntina*, L., 含生草.

„ 193, *Arabis perfoliata*, Lam., 南芥菜.

„ 373, *ff. Brassica* [*v.* 361].

Jap., 444, *Capsella* [*v.* 367].

„ 455, *Cardamine sylvatica*, Link., 碎米薺.

„ 932, *Eutrema Wasabi*, Max., 山葙菜.

„ 1170, *Isatis* [*v.* 392].

„ 1400, *Matthiola incana*, R. Br., 紫羅欄花.

„ 1486, *Nasturtium montanum*, Wall., 水芥菜 (葶藶).

„ 1862, *Raphanus sativus*, L., 萊菔.

„ 2085, *Sinapis*. [*V.* 362.]

„ 2089, *Sisymbrium*. [*V.* 434.]

„ 2196, *Thlaspi arvense*, L., 遏藍菜.

CUCURBITACEÆ.—葫蘆科 [*v.* 382–387].

CUPULIFERÆ.—殼斗科 [*v.* 539, *Castanea*, *v.* 494].

CYCADACEÆ.—蘇鐵科.

Jap., 724, *Cycas revoluta*, Thbg., 風尾松.

CYPERACEÆ.—莎草科 [*v.* 97, 463].

Cyperus Iria, L., 莎草.

Heleocharis plantaginea, R. Br., *v.* 59, 荸薺.

DIAPENSIACEÆ.—岩梅科. *Jap.*, 791.

DIOSCOREÆ.—薯蕷科. [*V.* 379.]

Diosc. gracillima, Miq., 癩蝦蟆.

DIPSACEÆ.—山蘿蔔科.

Jap., 815, *Dipsacus japonicus*, Miq., 山芹菜.

„ 2008, *Scabiosa japonica*, Miq., 山蘿蔔.

DROSERACEÆ.—茅膏菜科.

Jap., 828, *Drosera lunata*, Buch., 茅膏菜, 石龍牙草.

EBENACEÆ.—柿樹科, 491, 484.

ELÆAGNACEÆ.—胡頹子科.

Jap., 840, *Elæagnus longipes*, A. Gray., 胡頹子 (*El. p.*).

„ 842, „ *pungens*, Thbg., 木半夏 (*El. long.*).

EQUISETACEÆ.—木賊科.

Jap., 875, *Equisetum arvense*, L., 問荊.

„ 876, „ *hyemale*, L., var. *japonicum*, Milde., 木賊.

„ 878, „ *ramosissimum*, Desf., 節草.

ERICACEÆ.—石南科.

Jap., 146, *Andromeda japonica*, Thbg., 椅木.

„ 148, „ *ovalifolia*, Wall. (*Pieris*, Don.), 馬酔木 (南燭).

„ 630, *Clethra barbinervis*, S. & Z., 山茶科.

„ 1261, *Leucothœ Grayana*, Max., 木藜蘆.

„ 1456, *Monotropa uniflora*, L., 水晶蘭.

„ 1817, *Pyrola rotundifolia*, L., 鹿蹄草 (鹿銜草).

Rh. brachycarpum, Don., 石南.

„ 1878, *Rhododendron indicum*, Sw., var. *Kæmpferi*, Max., 山躑躅.

Rhododendron indicum, Sw., var. *macranthum*, Max., 杜鵑花.

Rhododendron indicum, Sw., var. *obtusum*, Max., 石巖.

„ 1881, „ *ledifolium*, Don., var. *leucanthum*, DC., 白杜鵑花.

„ 1883, „ *Metternichii*, S. & Z., 石南, 馬銀花.

„ 1888, „ *sinense*, Sw., 羊躑躅.

„ 2276, *Vaccinium Vitis idœa*, L., 越橘.

ERIOCAULEÆ.—穀精草科.

Eriocaulon sexangulare, L., 穀精草.

EUPHORBIACEÆ.—大戟科. *Aleurites* [*v.* 515].

Jap., 395, *Buxus japonica*, Müll., 錦熟黃楊.

„ 396, „ „ var. *microphylla*, Müll., 黃楊木.

„ 705, *Croton Tiglium*, L., 巴豆.

„ 760, *Daphniphyllum macropodum*, Miq., 楠.

„ 846, *Elæococca* [*v.* 515].

„ 916, *Euphorbia helioscopia*, L., 澤漆.

„ 917, „ *humifusa*, Willd., 地錦.

„ 918, „ *lasiocaula*, Boiss., 大戟.

„ 919, „ *Lathyris*, L., 續隨子.

„ 921, „ *Rochebruni*, Fr. & S., 草蔥茹.

„ 922, „ *Siebold iana*, Morr. et Decne., 甘遂 (大戟).

„ 1430, *Mercurialis leiocarpa*, S. & Z., 山靛.

Jap., 1615, *Phyllanthus Urinaria*, L., 葉下珠.

„ 1913, *Ricinus communis*, L., 蓖麻.

„ 1926, *Rottlera* [*v.* 290].

„ 1991, *Sapium sebiferum*, Roxb., 烏臼木.

FICOIDEÆ.—蕃杏科.

Jap., 1449, *Mollugo stricta*, L., var. *latifolia*, Fenzl., 粟米草.

„ 2185, *Tetragonia expansa*, Ait., 蕃杏.

FILICES.—羊齒科 [*v.* 377].

GENTIANACEÆ.—龍膽科.

Jap., 1001, *Gentiana scabra*, Bge., var. *Buergeri*, Max., 龍膽.

„ 1282, *Limnanthemum indicum*, Griseb., 金銀蓮.

„ 1283, „ *nymphoides*, Lk., var. *japonicum*, Miq., 蒼菜 [*v.* 47, 399].

„ 1421, *Menyanthes trifoliata*, L., 睡菜.

„ 1518, *Ophelia* (*Swertia*) *bimaculata*, S. & Z., 獐牙菜.

GERANIACEÆ.—牻牛兒苗科.

Jap., 1007, *Geranium nepalense*, Sweet., (紫地榆) 牻牛兒苗. (*Erodium cicutarium*, Lem., var. *pimpinellæfolium*, Cav.).

Geranium Robertianum, L., 漢荽魚腥草.

„ 1142, *Impatiens Balsamina*, L., 鳳仙花.

„ 1145, „ *Textori*, Miq., 野鳳仙花.

„ 1543, *Oxalis corniculata*, L., 酢醬草.

„ 2249, *Tropæolum majus*, L., 金蓮花.

GESNERACEÆ.—苦苣苔科.

Jap., 655, *Conandron ramondioides*, S. & Z., 苦苣苔.

GNETACEÆ.—麻黃科.

Jap., 865, *Ephedra vulgaris*, Rich., var. *helvetica*, Hk. & Thomps, 麻黃.

GRAMINEÆ.—禾本科. [*V.* 459–463.]

Phragmites macer, Munroe, 蘆.

Eragrostis pilosa, Beauv., 畫眉草.

Diarrhena japonica, 龍常草.

Setaria excurrens, Miq., 蒺草. (*Coix* are reversed.)

Miscanthus jap., Bth., 芒 [compare 188]. *Eleusine coracana*, Gærtn., 穆. *Arundo Roxb.*, Kth., *v.* 455, 狹蘆竹.

HALORAGEÆ.—蠟塔科 [*v.* 401]. *Callitriche stagnalis*, Scop. 水馬齒.

HAMAMELIDEÆ.—金縷梅科.

Jap., 820, *Distylium racemosum*, S. & Z., 蚊母樹.

„ 1066, *Hamamelis japonica*, S. & Z., 金縷梅.

Liquidambar [*v.* 261].

HÆMODORACEÆ.—即心蘭科.

Aletris japonica, Lam., 粉條兒菜.

Ophiopogon japonicus, Gawl., 小葉麥門冬 [*v.* 103].

Liriope spicata, Lour., 大葉麥門冬.

HYDROCHARIDEÆ.—水鼈科.

Jap., 2280, *Vallisneria spiralis*, L., 苦草.

Hydrocharis [*v.* 400]. (*H. asiatica*, 馬尿花).

HYPERICINEÆ.—金絲桃科.

H. Ascyrion, L., 湖南連翹.

Jap., 1118, *Hypericum, chinense*, L., 金絲桃.

„ 1119, „ *erectum*, Thbg., 小連翹.

„ 1122, „ *patulum*, Thbg., 金絲梅.

„ 1123, „ *Sampsoni*, Hce., 元寶草.

ILICINEÆ.—冬青科 [*v.* 490].

IRIDEÆ.—鳶尾科.

Jap., 702, *Crocus sativus*, L., 番紅花, 洎夫藍.

„ 1160, *ff. Iris* [*v.* 467].

„ 1565, *Pardanthus chinensis*, Ker., 射干 (*Belamcanda chin.*, Ad.).

JUGLANDACEÆ.—胡桃科.

Jap., 1194, *Juglans cordiformis*, Max., 陳倉胡桃.

„ 1195, „ *regia*, L., var. *sinensis*, Casim., 胡桃.

„ 1196, „ *Sieboldiana*, Max., 山胡桃.

„ 1657, *Platycarya strobilacea*, S. & Z., 化香樹.

JUNCACEÆ.—燈心草科

Jap., 1198, *Juncus balticus*, Deth., 石龍芻 [*v.* 16, 455].

Jap., 1200, *Juncus communis*, var. *effusus* [*v.* 176].

„ 1335, *Luzula* [*v.* 455].

LABIATÆ.—唇形科.

Jap., 85, *Ajuga decumbens*, Thbg., var. *sinuata*, Fr. & S., 金瘡小草.

Var. *typica*, Fr. & S., 筋骨草.

„ 385, *Brunella vulgaris*, L., 夏枯草.

„ 405, *Calamintha chinensis*, Bth., 風輪菜.

„ 572, *Chelonopsis moschata*, Miq., 鈴子香.

„ 857, *Elsholtzia cristata*, Willd., 香薷.

„ 1226, *Lamium album*, L., var. *barbatum*, 續斷, 野芝麻.

„ 1243, *Leonurus* [*v.* 444].

„ 1326, *Lophantus rugosus*, Fisch., 排草香.

„ 1355, *Lycopus europæus*, L., 地瓜兒苗.

„ 1424, *Mentha arvensis*, L., var. *vulgaris*, Bth., 薄荷.

Mosla grosseserrata, Max., 薔蕚.

„ 1461, *Mosla punctata*, Max., 鬲牀 (石薔蕚).

„ 1491, *Nepeta Glechoma*, Bth., 連錢草.

„ 1492, „ *japonica*, Max., 假蘇.

„ 1503, *Ocimum basilicum*, L., 羅勒.

„ 1588, *Perilla* [*v.* 64]. (*Perilla arguta*, Bth, 紫蘇).

„ 1665, *Plectranthus longitubus*, Miq., 香茶菜.

„ 1924, *Rosmarinus officinalis*, L., 迷迭香.

Salvia [*v.* 17]. *S. jap.*, var. *bipinnata*, Fr. & S., 丹參.

Salvia plebeia, R. Br., 荊芥.

„ 2036, *Scutellaria* [*v.* 447].

Stachys aspera, Michx., var. *jap.*, Max., 水蘇.

„ 2139, „ *Sieboldi*, Miq., 草石蠶 (*St. affinis*, Bge.)

LARDIZABALEÆ.—木通科 [*v. Berberideæ*].

LAURINEÆ.—樟科 [*v.* 512].

Lindera strychnifolia, Bth. et Hkr., 天台烏藥.

LEGUMINOSÆ.—荳科 [*v.* 354].

Bauhinia japonica, Max., 田螺虎樹.

Crotolaria sessiliflora, L., 野百合.
Desmodium podocarpum, DC., for *D. Oldhami*, Oliv.
Glycina soja, S. & Z., 蘑豆.
Lotus corniculatus, L., var. *japonicus*, Regel., 牛角花.
Wistaria chinensis, S. & Z., 紫藤.

LEMNACEÆ.—浮萍科 [*v.* 400].

LENTIBULARIEÆ.—狸藻科.

LILIACEÆ.—百合科. [*Allium*, *v.* 360].

Asparagus [*v.* 108, *Anemarrhena*, *v.* 94].
Jap., 244, *Aspidistra lurida*, Gaw., 蜘蛛抱蛋.
„ 322, *Barnardia japonica*, Rœm. & Sch., 綿棗兒.
„ 422, *Calodragon nobilis*, Planch., 朱蕉.
„ 784, *Dianella odorata*, Bl., 竹葉蘭.
„ 817, *Disporum pullum*, Salisb., 萬壽竹.
„ 899, *Erythronium denscanis*, L., 車前葉山慈姑.
Funkia and *Hemerocallis* [*v.* 424].
Fritillaria [*v.* 75, 423].
„ 1072, *Helinopsis grandiflora*, Fr. & S., 粉條兒菜.
„ 1083, *Heterosmilax japonica*, Kth., 土茯苓.
„ 1270, *Lilium auratum*, Ldl, 天香百合.
„ 1273, „ *concolor*, Salisb., var. *pulchellum*, Fisch., 山丹
„ 1274, „ *cordifolium*, 蕎麥葉貝母.
„ „ *japonicum*, Thbg., 百合.
„ 1281, „ *tigrinum*, Gawl., 卷丹.
„ 1527, *Orithia edulis*, Miq., 山慈姑.
„ 1566, *Paris tetraphylla*, A. Gray, 玉孫.
„ 1676, *Polianthes tuberosa*, L., 月下香.
Polygonatum [*v.* 52]. *P. giganteum*, Miq., 白及
黃精.
„ 1866, *Reineckia carnea*, Kth., 吉祥草 (七厘麻).
„ 1874, *Rhodea japonica*, Roth, 萬年青.
Scilla chinensis, Bth., 綿棗兒 [*v. Jap.*, 322].
„ 2018, „ *maritima*, L., 海葱.
„ 2094, *Smilacina japonica*, A. Gray, 鹿藥.

Jap., 2095, *Smilax biflora*, Sieb., 山梨兒.
„ 2096, „ *China*, L. [*v.* 386].
„ 2097, „ *herbacea*, L., var. *nipponica*, Max., 牛尾菜.
„ 2098, „ *Sieboldi*, Miq., 粘魚鬚.
„ 2228, *Tricyrtis japonica*, Miq., 油點草.
„ 2252, *Tulipa Gesneriana*, L., 鬱金香.
„ *edulis*, Bkr., 山慈姑.
„ 2284, *Veratrum album*, L., var. *grandiflorum*, Max., 蒜藜蘆.
„ 2285, *Veratrum nigrum*, L., 藜蘆.

LINACEÆ.—亞麻科.

Jap., 1293, *Linum* [*v.* 388].

LOGANIACEÆ.—馬錢科.

Jap., 389, *Budleya* [*v.* 465].

LORANTHACEÆ.—槲寄生科.

Loranthus [*v.* 449].
Viscum [*v.* 450].

LYCOPODIACEÆ.—石松科.

Jap., 1174, *Isoetes japonica*, A. Br., 水韭.
„ 1348, *Lycopodium clavatum*, L., 石松.
„ 1351, „ *japonicum*, Thbg., 玉柏.
„ 2049, *Selaginella caulescens*, Spr., 兗州卷柏.
„ 2050, „ *involvens*, Spr., 卷柏.
„ 2051, „ *Kraussiana*, Kze., 地柏 (翠雲草).

LYTHRARIEÆ.—千屈菜科.

Jap., 1225, *Lagerstræmia indica*, L., 百日紅, 紫薇花.
„ 1370, *Lythrum virgatum*, L., 千屈菜.
„ 1806, *Punica Granatum*, L., 安石榴.

MAGNOLIACEÆ.—木蘭科 [*v.* 551].

Euptelea polyandra, S. & Z., 雲葉.
Illicium religiosum, L. [*v.* 464].
Magnolia fuscata, Andr., 含笑花.
„ *pumila*, Andr., 夜合花.
Michelia compressa, Max., 黃心樹.

MALVACEÆ.—錦葵科 [*v.* 368, 369]. *Hib. rosa sin.*, L., 佛桑.

Abutilon [*v.* 388, 389].

MARSILEACEÆ.—蘋科 [*v.* 113, 114. *Jap.*, 1399].

Jap., 1984, *Salvinia vulgaris*, Mich., 槐葉蘋.

MELASTOMACEÆ.—野牡丹花.

Jap., 376, *Bredia hirsuta*, Bl., 野海棠.

„ 1408, *Melastoma macrocarpa*, Don., 野牡丹.

MELIACEÆ.—楝科 [*v.* 544, 520].

MENISPERMACEÆ.—防己科.

Jap., 647, *Cocculus diversifolius*, Miq., 漢防己.

„ 648, „ *laurifolius*, DC., 衡州烏藥.

„ 649, „ *Thunbergii*, DC., 木防己.

MYRICACEÆ.—楊梅科 [*v.* 244].

MYRISTICACEÆ.—肉豆蔻科.

Jap., 1473, *Myristica fragrans*, Houtt., 肉豆蔻.

MYRSINACEÆ.—紫金牛科.

Jap., 201, *Ardisia crispa*, DC., 百兩金, 硃砂根.

„ 202, „ *japonica*, Bl., 紫金牛.

„ 1378, *Mæsa doræna*, Bl., 杜莖山.

MYRTACEÆ.—桃金孃科.

Jap., 901, *Eugenia caryophyllata*, Thbg., 丁香.

„ 902, „ *Jambos*, L., 蒲桃.

„ 1791, *Psidium Guava*, L., 番石榴.

„ 1891, *Rhodomyrtus tomentosa*, Wight, 桃金孃.

NAIADEÆ.—眼子菜科 [*v.* 401].

Potamogeton polygon., 牙齒草.

NYMPHÆACEÆ.—睡蓮科 [*v.* 395].

Brasenia peltata, Pursh., 蓴.

OLEACEÆ.—木犀科 [*v.* 544]. *Syringa vulgaris*, L., 紫丁香.

ONAGRARIEÆ.—柳葉菜.

Jap., 1208, *Jussiæa repens*, L., 水龍.

Trapa [*v.* 397].

ORCHIDEÆ.—蘭科.

Aërides japonicum, Ldl. et Reichb., 屈子花.

Jap., 207, *Arethusa japonica*, Gr., 朱蘭. (*Pogonia ophioglossoides*, Nutt.).

„ 351, *Bletia hyacinthina*, R. Br., 白及.

„ 726, *Cymbidium ensifolium*, Sw., 建蘭.

„ 727, „ *virens*, Ldl., 朵朵香.

„ 745, *Cypripedium japonicum*, Thbg., 鬼督郵(蘭花雙葉草).

„ 772, *Dendrobium moniliforme*, Sw., 石斛.

„ 773, „ *reptans*, Fr. & S., 雀髀斛.

„ 873, *Epipactis gigantea*, Hkr., 小紫含笑.

„ 981, *Galeola septentrionalis*, Reichenb., 山珊瑚.

„ 995, *Gastrodia elata*, Bl, 天麻.

„ 1061, *Habenaria radiata*, Thbg., 鷺毛玉鳳花.

„ 1334, *Luisia teres*, Bl, 釵子股.

Phaius grandiflorus, Lour., 虎頭蘭.

Pogonia ophioglossoides, Nutt., 朱蘭.

„ 2132, *Spiranthes australis*, Ldl., 綬草, 盤龍參.

OROBANCHACEÆ.—列當科.

Jap., 66, *Æginetia indica*, Roxb., 野菰.

„ 1530, *Orobanche ammophila*, C. A. Mey., 列當.

PANDANACEÆ.—露兜樹.

Jap., 1551, *Pandanus odoratissimus*, L., 露兜花.

PAPAVERACEÆ.—罌粟科.

Jap., 208, *Argemone mexicana*, L., 老鼠芳.

„ 1375, *Bocconia* (*Macleya*) *cordata*, R. Br., 博落廻.

„ 571, *Chelidonium Majus*, L., 白屈菜.

„ 681, *Corydalis ambigua*, Cham. & Schl., 延胡索. [Other *C.*, *v.* 371.]

„ 793, *Dicentra spectabilis*, Miq., 荷包牡丹.

„ 1563, *Papaver Rhœas*, L., 虞美人草.

„ 1564, „ *somniferum*, L., 罌子粟.

PASSIFLOREÆ.—西番蓮科.

Jap., 1572, *Passiflora cærulea*, L., 西番蓮.

PEDALINEÆ.—胡麻科 [*v.* 388]. (*Sesam. indic.*, 芝麻).

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Jap., 1643, *Piper Futo-Kadsura*, S. & Z., 土蔞藤.

„ 1996, *Saururus Loureiri*, Decne., 三白草.

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Jap., 1645, *Pittosporum Tobira*, Ait., 海桐花.

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Jap., 2142, *Statice arbuscula*, Max., 石蓯蓉.

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Jap., 1453, *Monochoria plantaginea*, Kth., 鴨舌草.

„ var. *cordifolia*, Fr. & S., 蘱草.

„ 1454, „ *vaginalis*, Presl., 雨久花.

PORTULACEÆ.—馬齒莧科.

Jap., 1738, *Portulaca oleracea*, L., 馬齒莧.

„ var. *sativa*, DC., 豚耳草.

PRIMULACEÆ.—櫻草科.

Jap., 1362, *Lysimachia clethroides*, Duby., 珍珠菜 (扯根菜).

„ *davurica*, Willd., 黃連花.

„ 1364, „ *Fortunei*, Max., 宿星菜.

„ „ *sikokiana*, Miq., 排草.

„ 1769, *Primula sinensis*, Ldl., 藏報春.

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Jap., 42, *Aconitum Fischeri*, Reichb., 附子.

„ 43, „ *lycoctonum*, L., 牛扁.

„ 44, „ *Napellus*, L., var. *ambiguum*, Reg., 細葉烏頭.

„ 64, *Adonis amurensis*, Reg. & Radd., 側金盞花.

Jap., 155, *Anemone cernua*, Thbg., 白頭翁.
„ 158, „ *hepatica*, Gort., 獐耳細辛.
„ 159, „ *japonica*, S. & Z., 秋牡丹.
„ 162, „ *nikoensis*, Max., 雙瓶梅.
„ 163, „ *pensylvanica*, L., 草玉梅.
„ 188, *Aquilegia atropurpurea*, Willd., 耧斗菜.
Cimicifuga simplex, W., var. *racemosa*, Max., 升麻.
„ 619, *Clematis apiifolia*, DC., 女萎.
„ 620, „ *florida*, Thbg., 鐵線蓮.
„ 622, „ *paniculata*, Thbg., 大蓼.
„ „ *patens*, Morr. & Dec., 轉子蓮.
„ 664, *Coptis anemonæfolia*, S. & Z., 黃連.
Delphinium Ajacis, L., 小草烏.
„ 882, *Eranthis* [*v.* 115].
„ 1671, *Pæonia albiflora*, Pull., 芍藥.
„ 1672, „ *Moutan*, Sims, 牡丹.
„ 1852, *Ranunculus acris*, L., 毛茛.
„ 1857, „ *sceleratus*, L., 石龍芮.
„ 1859, „ *ternatus*, Thbg., 回回蒜.

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ROSACEÆ.—薔薇科.

Jap., 71, *Agrimonia viscidula*, Bge., var. *japonica*, Miq., 龍芽草.
Amelanchier [*v.* 475].
„ 693, *Crataegus cuneata*, S. & Z., 山楂 [*v.* 244].
„ 694, „ *sanguinea*, Pall., var. *glabra*, Max., 羊杭子.
Fragaria [*v.* 436].
„ 1016, *Geum japonicum*, Thbg., 水楊梅.
„ 1211, *Kerria japonica*, DC., 棣棠花.
„ 1539, *Osteomeles subrotunda*, Koch., 小石積 (*O. anthyllidifolia*, Ldl.).
„ 1608, *Photinia japonica*, Thbg., 枇杷 (*Eriobotrya*).
„ 1747, *Potentilla chinensis*, Ser., var. *hirtella*, Fr. & S., 委陵菜.

Jap., 1748, *Potentilla cryptotæniæ*, Max., 狼牙.

„ 1750, „ *discolor*, Bge., 雞腿兒.

„ 1756, „ *Wallichiana*, Del., 蛇含. (*Kleiniana*, W. & Arn.).

Potentilla ternata, Max., (var. of *fragarioides*, L.), 翻白草.

„ 1758, *Poterium officinale*, L., 地榆.

„ 1759, „ *sanguisorba*, L., 胡蒼耳.

Prunus [*v.* 470–477].

Pyrus [*v.* 478–482, 301].

„ 1892, *Rhodotypos kerrioides*, S. & Z., 雞麻.

„ 1916, *Rosa Banksiæ*, R. Br., 木香花.

„ 1917, „ *indica*, L., 月季花.

„ 1922, „ *multiflora*, Thbg., 野薔薇 [*v.* 295].

„ 1923, „ *rugosa*, Thbg., 玫瑰.

Rubus [*v.* 436]. *R. idæus*, L., var. *strigosus*, Max., 覆盆子.

Spiræa prunifolia, S. & Z., 笑靨花.

„ *cantoniensis*, Lour., 麻葉繡菊.

„ *Blumei*, 珍珠梅.

„ *japonica*, L. f., 繡線菊.

ROXBURGHIACEÆ.—百部科.

Jap., 703, *Croomia japonica*, Miq., 黃精葉鈎吻.

„ 1928, *Roxburghia sessilifolia*, Miq., 百部.

„ 1927, „ *japonica*, Bl., 蔓生百部.

RUBIACEÆ.—茜草科.

Jap., 750, *Damnacanthus indicus*, Gærtn., 虎刺, 伏牛花.

„ 982, *Galium aparine*, L., 猪殃殃.

„ 984, „ *boreale*, L., var. *japonicum*, Max., 特生茜草.

„ 990, „ *verum*, L., 蓬子菜.

„ 991, *Gardenia florida*, L., 卮子 [*v.* 302].

„ 993, „ *radicans*, Thbg., 水梔子.

„ 1187, *Ixora stricta*, Roxb., 黃子木.

Mussænda parviflora, Miq., 白茶葉.

Jap., 1546, *Paederia fœtida*, L., 牛皮凍, 女青.
Rubia cordifolia [*v.* 393].
„ 2072, *Serissa fœtida*, Com., 滿天星.
„ 2259, *Uncaria rhynchophylla*, Miq., 釣藤.
Webera corymbosa, Willd., 嵩香.

RUTACEÆ.—芸香科.

Citrus [*v.* 486–488].
Jap., 797, *Dictamnus albus*, L., 白鮮.
„ 934, *Evodia rutæcarpa*, Bth. & H., 吳茱萸.
„ 1529, *Orixa japonica*, Thbg., 常山.
„ 1957, *Ruta graveolens*, L., 芸香.
„ 2092, *Skimmia japonica*, Thbg., 茵芋.
Zanthoxylum [*v.* 497].

SABIACEÆ.—清風藤科.

Jap., 1958, *Sabia japonica*, Max., 清風藤.

SALICINEÆ.—楊柳科 [*v.* 523, 524].

SANTALACEÆ.—檀香科.

Jap., 2195, *Thesium decurrens*, Bl., 百蕊草.

SAPINDACEÆ.—無患樹科 [*v.* 550].

SAXIFRAGEÆ.—虎耳草科.

Chrysosplenium alternifolium, L., var. *japonicum*, Max., 猫兒眼睛草.
Jap., 783, *Deutzia Sieboldiana*, Max., 溲疏.
„ 1108, *Hydrangea petiolaris*, S. & Z., var. *cordifolia*, Max., 藤繡毬.
„ 1109, *Hydrangea Thunbergii*, S., 土常山.
„ 1605, *Philadelphus coronarius*, L., var. *Satsumi*, Max., 山梅花.
„ 1905, *Ribes ambiguum*, Max., 蔦.
„ 1914, *Rodgersia podophylla*, A. Gray, 鬼燈檠.
„ 2005, *Saxifraga sarmentosa*, L., 虎耳草.
„ 2016, *Schizophragma hydrangeoides*, S. & Z., 鎖地風.

SCITAMINEÆ.—薑科 [*v.* 379, 381].

Alpinia chinensis, Sw., 高良薑.

Jap., 720, *Curcuma longa*, L., 薑金.
„ 1464, *Musa Basjoo*, S., 芭蕉.
„ 1465, „ *coccinea*, Willd., 美人蕉.
„ 1466, „ *sapientum*, L., 甘蕉.

SCROPHULARINEÆ.—玄參科.

Jap., 1285, *Linaria japonica*, Miq., 柳穿魚.
„ 1401, *Mazus rugosus*, Lour., var. *macranthus*, Fr. & S., 通泉草 (雞腸菜).
„ 1577, *Paulownia* [*v.* 515].
„ 1581, *Pedicularis* [*v.* 432]. *Rehmannia* [*v.* 180, 68].
„ 2033, *Scrophularia alata*, A. Gray, 山玄參.
„ 2034, „ *Oldhami*, Oliv., 玄參.
„ 2088, *Siphonostegia chinensis*, Bth., 陰行草.
„ 2282, *Vandelia crustacea*, Bth., 公草母草.
„ 2291, *Veronica agrestis*, L., 婆婆納.
„ 2293, „ *Anagallis*, L., 水苦蕒.
„ 2296, „ *longifolia*, L., 兎兒尾苗.
„ 2300, „ *peregrina*, L., 蚊母草.
„ 2303, „ *virginica*, L., 草本威靈仙.

SIMARUBEÆ.—黃楝樹科.

Ailanthus [*v.* 518].

Jap., 1629, *Picrasma ailanthoides*, Planch., 黃楝樹.

SOLANACEÆ.—茄科 [*v.* 79, 526]. (79, *S. Dulcamara*, 蜀羊泉).

STERCULIACEÆ.—梧桐科.

Jap., 1585, *Pentapetes phœnicea*, L., 夜落金錢.
„ 2155, *Sterculia platanifolia*, L., 梧桐.

STYRACACEÆ.—齊墩果.

Jap., 2162, *Styrax japonicum*, S. & Z., 齊墩果.
„ 2163, „ *Obassia*, S. & Z., 玉鈴花.
Symplocos cratægoides, Don., 山指甲.

TAMARISCINEÆ.—檉柳科 [*v.* 527].

TERNSTRŒMIACEÆ.—厚皮香科.

Actinidia [*v.* 198, 493].

Jap., 428, *Camellia japonica*, L., 山茶.
„ 429, „ *Sasanqua*, Thbg., 茶梅.
„ 430, „ *theifera*, Griff., 茶, 茗.
„ 431, „ „ var. *macrophylla*, Sieb., 皐盧.
„ 631, *Cleyera japonica*, Thbg., 楊桐.
„ 928, *Eurya japonica*, Thbg., 柃.
„ 2140, *Stachyurus præcox*, S. & Z., 旌節花.
„ 2183, *Ternstroemia japonica*, Thbg., 厚皮香.

THYMELIACEÆ.—瑞香科.

Jap., 187, *Aquilaria Agallocha*, Roxb., 沈香.
Daphne [*v.* 465].
„ 755, „ *kiusiana*, Miq., 白瑞香.
„ 756, „ *odora*, Thbg., 瑞香.
„ 836, *Edgeworthia papyrifera*, S. & Z., 黃瑞香.

TILIACEÆ.—菩提樹科.

Corchorus, *Corchoropsis* [*v.* 388].
Jap., 845, *Elæocarpus photiniæfolia*, H. & A., 膽八樹.
Tilia Miqueliana, 菩提樹.

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Hydrocotyle Asiatica, L., 積雪草.
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URTICACEÆ.—蕁麻科.

Jap., 850, *Elatostema involucratum*, Fr. & S., 赤車使者
(*umbellatum*, Bge.), (樓梯草 *El. invol.*).
„ 1102, *Humulus japonicus*, S. & Z., 葎草.
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Ulmus [*v.* 263, 304].
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VALERIANEÆ.—敗醬科.

Jap., 2278, *Valeriana officinalis*, L., 甘松.

„ 1574, *Patrinia palmata*, Max., 地花菜.

„ 1575, „ *scabiosæfolia*, Lk., 敗醬.

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This list of plants was prepared from MATSUMURA's work before knowing of the existence of the Tokyo Catalogue of Plants. The latter omits a large number of M's Chinese names, but gives a few of other plants. They have been added here without a special mark. All with the mark "*Jap.*" and a No. refer to MATSUMURA's. It must be borne in mind that it is not a complete list of Chinese plants which is intended, but of Chinese names of plants and of their identifications in Japan. These identifications cannot yet be considered as final, but merely as tentative, till corresponding evidence has been found in China. The alphabetical arrangement of the orders will facilitate research. Time did not admit of including the names in this list in the Index of Chinese Names which follows hereafter.

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Prepared by Dr. E. FABER.

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Note.—A few names, not of Genera Plantarum, as Vinegar, Wine, etc., have found a place in this Index to facilitate reference.

PROCEEDINGS.

MINUTES *of a* GENERAL MEETING *held in the Society's Library, Museum Road, Shanghai, on Tuesday, 11th November 1890, at 9 p.m.*

Mr. P. J. HUGHES (President) in the chair. There were about 30 persons present.

In opening the proceedings, the CHAIRMAN said that as the minutes of the last meeting had been already published in the Society's Journal, he thought they might be taken as read. He had to announce that during the past half-year the following gentlemen had been elected members of the Society; namely, Messrs. C. W. Campbell, of Seoul, Corea; Prof. E. P. Thwing, M.D., of Canton; Rev. A. Elwin, of Hangchow; Prof. H. Robinson, B.A., of Wuchang; J. Calder, of Port Arthur, North China; F. B. Parkinson, A.R.S.M., of Hankow; Rev. S. A. Hunter, M.A., M.D., of Tsining, Shantung; R. Kliene, of Ningpo; Rev. C. D. Bradlee, D.D., of Boston, Mass., U.S.A.; and the following residents of Shanghai:—Messrs. O. Franke, Ph.D.; General W. Mesny; F. Lemke; F. W. E. Dülberg; B. R. A. Navarra; W. P. Brown; H. Schiötz; and J. B. Jack. This list, the Chairman thought, indicated satisfactory progress, and the statement which the Honorary Secretary was about to make respecting the Journal of the Society would, he believed, show that these publications,—which, as they were aware, members were entitled to receive free,—would be at least as valuable and interesting in the future as they had been in the past.

The HON. SECRETARY (Mr. W. Bright) then announced that the Society's Journal had been completed up to date, the last fascicule (No. 3) of vol. xxiv having been issued to members at the end of last month. The new Journal would open with a valuable paper—the result of many years' research and of much study—by a

ripe scholar, Dr. Bretschneider. It was styled "Botany of the Chinese Classics," and was, in fact, a continuation of the studies condensed in a paper by the same author which appeared, under the title "Botanicon Sinicum," in their Journal some ten years ago. The MS. had arrived safely from St. Petersburg, and had just been placed in the printers' hands. The paper would have the benefit of revision and annotation by Dr. Faber, a high authority on botanical subjects; and thus it would doubtless serve as an extremely valuable work of reference. It might be interesting to inform them that Dr. Bretschneider was at work on another paper, which, however, it was feared, would not be ready for some years, on "Chinese Medicines." In regard to the Society's circular on "Inland Communications," issued early in the year, the Secretary said that the replies received from the interior had not, on the whole, been as complete or as numerous as could have been desired. It was therefore decided to reissue the circular to those provinces from which replies had not yet come in. Some of the papers received, however, were especially valuable, chief among which might be mentioned the exhaustive monograph by the Rev. Père Havret on the province of Anhwei, accompanied by two maps; a paper by Mr. Chr. Jensen on the Yünnan province, also accompanied by three maps of routes over which he had personally travelled in laying the telegraph line of the Imperial Chinese Telegraph Admininstration; and a paper by Mr. George Graham Brown on the province of Kansu, with some valuable notes on the Bridge of Boats (800 feet long) at Lanchow. In all, the replies received might be summarised thus: 5 papers from Yünnan [it would seem that the most distant parts were the earliest to send in the information desired], 4 from Kiangsu, 3 each from Kansuh and Shensi, 2 each from Chihli and Anhwei, 1 each from Southern Formosa, Kwangtung (Pakhoi), Honan, Shansi, Hainan, Kwangsi and Mongolia. They were much indebted to those who had already favoured them with information, and there could be no doubt that should their anticipations in regard to obtaining further information be realised, the series of papers, when edited and prepared for publication by Mr. W. R. Carles (who had the work now in hand) would form a most valuable addition to their limited knowledge of the

roads (ancient and modern) and their condition, trade routes, modes and cost of travelling and of conveyance of goods and accommodation for travellers, and noteworthy bridges, viaducts, etc. throughout China ; the work might ultimately lead to the publication of a much-needed map of the highways and trade routes in the interior. It would, he considered, be an advantage if correspondents would forward photographs of the important bridges in their province, together with brief notes of the number and span of the arches, dimensions and estimated weight of the larger blocks of stone used in the construction of the bridges. Such photographs and notes would undoubtedly impart additional interest to the subject.

Dr. EDKINS then commenced his lecture "China 35 Centuries Ago" with the remark that no advantage was gained by cutting short the antiquity of civilised nations. Civilisations have usually been found after careful inquiry to be much older than was thought. The true foundations of the Chinese civilisation were laid in the third millennium before Christ, when the people taught by the sages learned their various occupations. It was at that time that the present system of government, in respect to some of the offices, commenced. Honan was the garden of China at that time, and it was there that the capital of the empire was fixed both in the Hia and in the Shang dynasties. The fertility of the land has been described by Richthoven, who compares the rich appearance of the agriculture to that of the most fertile portions of Europe. More precisely, the capital of China 35 centuries ago was Kweite Fu. Capital cities were built where the people were numerous and well-to-do—made so by agriculture, so that they had a learned class and were able to maintain with their superfluous wealth as well physicians, diviners, schoolmasters and astrologers as the officers of the government military and civil. The character of the Shang dynasty (1776 to 1154 B.C.) was moral and religious as compared with the Chow period when religious usages of a more polytheistic form than before were adopted in profusion and the people in their customs deserted the simplicity of ancient life. The ancient bronzes now preserved in the imperial and private collections testify to the mechanical progress made by China at that early time. The

manufacture of circular vases implies the previous use of the potter's wheel. At that time the rich used cups of gold and the poor had turned wooden bowls, but rude unglazed stoneware was made. Mr. Carles has lately sent to Shanghai a rubbing of a Chow dynasty bronze kept in a temple on Silver Island. Its age is determined by Chinese archæologists to be about B.C. 800, as is decided by the inscription of forty characters inside of the vase. The so-called tad-pole writing was referred to. It seems to have been like the cuneiform in the stroke, and this circumstance may be taken as adding a certain amount of proof to the opinion that the Chinese derived the art of writing from Babylonia. The slow music and solemn religious dance of the ancient Chinese in their ceremonials accompanying the worship of heaven and of ancestors were alluded to. They remind us of the dances of the ancient Jews as referred to in the Old Testament. Towards the end of the Shang dynasty a relative of the Chow imperial family proceeded to Soochow and was the founder of the Chinese civilisation of the Soochow plain. Ki-tsz, who was a sage belonging to the imperial family of the Shang dynasty, went to Corea and there first introduced the Chinese early civilisation.

At the conclusion of Dr. Edkins' lecture, the CHAIRMAN said that the very learned and interesting lecture which they had just heard touched upon several debatable points, such as the existence of the dragon and the presence of Persian missionaries in ancient China. These would doubtless receive due attention from sinologues, and he hoped among those present there were some who would favour them with their views. The small number of ancient monuments must be one great difficulty in the study of Chinese archæology. Unchanging as the Chinese were, and attached as they were, and had always been, if not to the homes of their ancestors, at least to their ancestral graves, they built their dwellings and even their temples for present use with small regard to posterity. Hence few traces remain in brick and mortar or in stone of the Chinese of five empires, not to speak of thirty-five centuries ago. No Herculaneum or Pompeii had been, or ever would be, found in China to bring vividly before them the everyday life of the past. For information about the period discussed they had to trust chiefly to traditions

preserved in records of later date. They were obliged to the Rev. Dr. Edkins for the light thrown upon this obscure subject by the result of his studies as communicated in the lecture of that evening, and he had no doubt that the meeting would join with him in tendering to the learned doctor a hearty vote of thanks.

The CHAIRMAN having announced that the meeting was now open for discussion,

Gen. MESNY said he agreed that considerable elevation of the soil of China must have taken place. He instanced a *pei-lo* which had been erected in the 13th century, and of which a good deal had been covered by accumulations of soil.

Dr. E. FABER said that it was with much interest in the subject that he followed the learned lecture of Dr. Edkins. As the discourse contained, however, many statements which were disputable, it would be impossible to enter into a detailed discussion at that moment. They all agreed that China enjoyed an ancient civilisation; they even agreed so far with Dr. Edkins as to admit that the Chow dynasty was not the beginning of mankind in China, but that other people had existed before the Chows and had managed in one way or another to live in society, or—in the sense of Aristotle—in political state. The astronomical data, however, referred to by Dr. Edkins were without scientific value. It had not been possible, in spite of repeated attempts made by eminent scholars and astronomers, to fix one date before 800 B.C. Stars were, of course, on the sky and people lived below the sky long before 1000 B.C., but to determine from the vague Chinese records referring to the period before 800 B.C the exact identification of a single star, its exact position at a certain time, and even the hour of observation to which the record belonged was an impossibility. Persian influence on China at the early period of about 1700-1200 B.C. should be proved by some incontrovertible evidence, not merely by a supposed similarity of two or three ideas among hundreds which differed altogether. The same rule applied to the cuneiform writing of the Mesopotamian valley. That the tadpole characters, of which no trace was left in China, were cuneiform was a tadpolic theory without the slightest historical proof. If Persian and Babylonian

literature had been known in China at so early a period, China must also have been known to Persia and Babylon, but not even a trace of China had been discovered in any ancient record of any country.

They were told of bronze-casting during the Shang period. But it had first to be shown that bronze was known in China at the time. The character for copper did not occur in the ancient Classics, nor even in the *Four Books*. The phrase "three metals" was found several times, but only commentators of the Han time told them that gold, silver and copper were meant, other commentaries said that it referred to three kinds of gold. Dr. Edkins told them that some bronze relics from the Shang period were still preserved, but forgot to give the evidence. That some Chinese authors said so was not sufficient reason; they needed to know on what ground the assumption was based. Dr. Edkins himself mentioned the gradual elevation of the soil in the plains of North China from an accumulation of dust ten to fifteen feet in historical times within 1,000 to 1,500 years, which was corroborated by General Mesny. They could consequently not expect any ancient bronzes to be found near to the surface. Ancient graves must now be 20 to 30 feet below the ground. Whatever was found nearer to the surface could not belong to a period B.C. He (Dr. Faber) had examined several Chinese works on antiquities and found none of them satisfactory. The Chinese had no test .of any value by which to determine the age of any bronzes, even of later times. They had a theory that bronze which had been for 1,000 years in the ground assumed a blue colour, and if for 1,000 years in water a green colour. Chinese critics, however, were aware that the same colours might be produced artificially in a short time. The Silver Island bronze referred to, of which he had the pleasure of seeing a rubbing at Dr. Edkins', could not possibly belong to 800 or 900 B.C. but might be referred with more probability to the Ming period 2,000 years later. The famous Yüan Yüan, who defends its age, shows his own disqualification for judging bronzes by stating that the polished appearance of the burner was due to a peculiar composition of the bronze: No trace of atmospheric influence on this bronze for 2,700 years!—Other Chinese authors are well aware of the innumerable counterfeits and

forgeries sold as genuine in China. One Ming author told them that in his time ancient bronze was manufactured in the Shantung, Shensi and Honan provinces, at Nanking and other places. Dr. Hirth's explanation of the Chinese Meander as representing, according to a Sung writer, the ancient characters for "cloud" and "thunder," did not prove that the ornament was known in China 2000-2500 years before that Sung writer. The duke of Chow was a famous statesman, and had for this very reason no time for writing books. He helped to establish the Chow dynasty and may have sketched the rudiments of its institution. The time before the Chow and even during the first centuries of the Chow government was not at all a period of high social and political development. Dr. Edkins referred to foreign tribes that still inhabited even the small arena of China proper at the time. The Emperors had really little or no control over the hill tribes. The Honan plain was nearly all they had really in their possession. It might be true that Kitsu, a younger brother of the founder of the Chow, went to Korea, but the real history of Korea begins a thousand years later. The plain of Soochow was more attractive and remunerative, but it was even in the time of Mencius still regarded as in a semi-barbarous state. They had also to distinguish between the Feudal states in the beginning of the Chow dynasty and the Feudal states in their highest development in China during the time of the Contending States, about 500 B C. They might regard them, in their first stage, as quasi-independent clans under a chief each, or controlled by the head of the family. The chiefs gradually assumed the dignity, magnificence, and ceremonial of princes, but probably not before the time of the Chow. How little dignified the early rulers of China were they could learn from passages in the Classics. Yao inspired awe by dressing in a garment hanging down over his legs. Shun, Yao's son-in-law and fellow-emperor, was sent by his parents out on to the top of their hut (palace?) to repair the roof made of straw. Another time he had to go down into a well to repair it. Though of Imperial descent he worked with his own hands in the fields. There he felt his loneliness and sighed to the blue sky because his parents would not allow him to marry. The great Yu worked so

hard in splitting the rocks of the Yangtsze Gorges that his hands became callous. The people did not feel the existence of a government before the Chow; everybody did as he pleased. Dr. Edkins introduced a eulogy of Chinese ancestral worship altogether out of place. The Shang were religious more than the Chow, but ancestral worship was brought into the peculiar Chinese shape and made the basis of political government by the Chow, especially the Confucian school. That reverence of parents and continuance of genealogies through millenniums are possible without ancestral worship, with all its humbug and social evils, Dr. Edkins may learn from a look into the Bible; the Jews may serve as patterns even to the Chinese. Dr. Edkins' paper was after all very defective. Of the principal sources of comparatively reliable information about the Shang, which cannot be received from Confucian sources without great caution, Dr. Edkins seemed to have no idea whatever. He (Dr. Faber) referred to Taoism in its earliest form. Taoism was a survival of the religious, political and social life of the Shang period. As he, however, intended to write a paper on this subject, this notice must suffice for the present. They knew further that the line of the Shang rulers was continued even in the Chow period in the state of Sung Though in the course of time many ancient usages were neglected, and Confucius thought what he found there in his time insufficient to attest antiquity, we may be able to glean something of value from the earlier records of the Sung state. It is remarkable that Mihism, *i.e.* Chinese Socialism, had its origin and head-quarters in Sung. Chinese bronze also required a separate paper, for which some preparation was going on.

Dr. JAMIESON regretted that a scholar of Dr. Edkins' reputation should have believed so blindly in the authenticity of Chinese authorities. He himself had never been able to find in Chinese literature any criticism which was not of the most vapid, verbal kind. He did not think an appreciation of what we meant by criticism of history had entered into the Chinese mind. It was well known that Chinese of the literary class were always prepared with an answer, however little they might know of the subject. In proof of this he gave a reminiscence of his student days in Peking,

when a number of the students amused themselves by inventing, as existing in Europe, various wonders which their Manchu teacher always asserted to have existed in China centuries before. The only thing the teacher could not credit China with was an electrical hen which laid eggs containing bacon.

Dr. Edkins said that some remarks in answer were required from him on account of the attack made on his opinions by some of the speakers. In regard to the possession of the critical faculty by the Chinese, it was not long after arriving in this country that he become aware of it. In a book belonging to Mr. Wylie he found a statement made that the tones of the language grow gradually and that one was added every thousand years or more. He studied the subject of tones, inquired as to the peculiarities of dialects, and found that it was as this author maintained. Since that time he had felt no doubt in regard to the critical powers of Chinese native scholars. The critical faculty was the result of education. In Europe it appeared in many persons because they had learned languages and studied logic, philosophy and grammar. In the same way in China reading many books and long-continued advantages of education produced it. Students went over a wide range of reading, and became familiar with argument, and so their critical powers were developed. One sees it in the documentary style of Chinese diplomacy. Subjects of discussion are in official documents stated with great clearness. There was no difficulty in seizing on the main idea and sense of the document. This was the result of Chinese education, which from some points of view was really a wide one, the literature of the country being very extensive. Bringing this critical faculty to the study of the sacrificial vases and other implements professing to belong to antiquity, native scholars were not likely to be easily deceived.*

* The following note from Dr. Bushell of Peking was received too late to be read at the meeting :—"There is a wealth of literature upon the famous "tripod vase preserved in Silver Island. I have more than one special "*brochure*, in addition to the notices in the general Archæological Collections. "Do you remember my once asking your kind intervention with Li Shen-lan, "to check one of the calculations of the date from the cyclical day given in "the inscription? His conclusion also was that it was correctly attributed "to the time of Hsüan Wang of the Chou dynasty."

The improvement observable in the critical powers and intellectual attainments of the Chinese was due to the invention of printing. That led to the multiplication of books. They were found in every village and city, and of course the knowledge of the student as it increased improved his reasoning faculties. It had not been without result that the Chinese had through four dynasties printed books largely. This mode of looking at the subject was needed in judging of the antiquity of parts of their literature. They could test the results of Chinese criticism by appealing to their own science. The most ancient fragments of Chinese literature were not of a mythical kind. They do not contain such myths as are found in Livy, nor could they be rejected as the early parts of Livy were rejected. But they do contain some astronomy. The places of the stars as there given agree with the positions of those stars as now known by the law of the precession of the equinoxes. Those positions could not have been known to the Chinese except by actually observing them. Thus the stars in the sky are witnesses to the correctness of these ancient records. Since the astronomy in old Chinese literature was correct, this must be viewed as evidence favourable so far to the claims to acceptance of the narratives in which it was imbedded.

The meeting then terminated with a vote of thanks to the Chairman.

MINUTES *of* PROCEEDINGS *at a* GENERAL MEETING *held at the Society's Library, Museum Road, Shanghai, on Monday, 6th April* 1891, *at 9 p.m.*

Dr. JOSEPH EDKINS, Vice-President, occupied the chair, and there were about twenty members present.

The CHAIRMAN having asked that the minutes of the last meeting be taken as read, as they had been so fully published in the papers, the Honorary Secretary, Mr. Mencarini, announced the election of the following new members:—Messrs. Henrick Bohr, Ting I-hsien, Harold Browett, J. F. Billinghurst, E. Gerecke, Liugi Camera, J. P. Donovan, W. M. Andrew and J. Timm, of Shanghai;

Mr. Juan de Licopolis Marçal, of Peking; and A. Zooyef, M.D., Naval Surgeon, Vladivostock.

The CHAIRMAN brought before the meeting a motion, proposed by Dr. Jamieson and seconded by Mr. von Möllendorff, which had been before the Committee Meeting, and which it would be necessary to confirm at the next General Meeting, to the effect that Mr. P. J. Hughes be made an Honorary Member of the Society.

Mr. FRASER then proceeded with the reading of his paper on the Fish-Skin Tartars, which is printed *in extenso* pp. 1-43 of vol. XXVI.

Mr. FRAZER was accorded a round of hearty applause at the conclusion of his paper, after which the Chairman said they were all deeply indebted to Mr. Fraser for these very valuable translations from the Russian, which showed what they might expect to gather from Russian sources, and they were very fortunate in having a member of the Society able to translate them. The subject, the Chairman added, was now open for discussion.

Mr. TAYLOR asked why were the Orotchis called Fish-Skin Tartars.

Mr. FRASER replied that strictly speaking it was a name applied by the Chinese to the Goldis, to whom the Orotchis are closely allied.

The CHAIRMAN:—The Orotchi children are dressed in fish-skins. I have been looking into the accounts of the Tungusic tribes about which we have been told this evening, and to which the Manchus belong, and I find they have been minutely described by the Russians. It is a Russian account we have just heard; a new mode of conducting research in a way very suitable for our Society is thus initiated. We may gain much valuable information on the northern nations of Asia from Russian sources. The Orotchis belong to a people who, as we judge from their language, were once a great nation. The Tungusic people before the time of Christ were powerful in North China till about B.C. 200, when they were conquered by the Hsiung-nu. After a few centuries they reappeared, and acquired great political power in the sixth century. They are

in fact the same race, as we judge by their language, with the Manchus of to-day. They are now in a state of intellectual decline, as we judge by their ethnological connection with other races observable in their vocabularies. Researches into the langnages and customs of the outlying tribes of the race to which the Manchus belong are likely to give inaccurate views as to the causes of the Manchus having acquired their present power. We ask why they have been able to subdue and to hold in subjection a nation so much mightier than themselves as the Chinese? In the answer to this question we must not lose sight of the fact that they belong to a race, which during millenniums has occupied in Asia those countries we call Manchuria, and from which it has from time to time emerged to acquire a temporary political importance. The vocabularies of the Tungusic tribes contain words which show connection with the Chinese, the Japanese, the Mongol, the Turkish, etc. For instance *kedu*, wind in Goldi, is the Japanese *kaze*.

Mr. Taylor in proposing a vote of thanks to Mr. Fraser, which Mr. von Möllendorff seconded, referred to one or two points in the interesting paper just read. The custom which the Orotchis have, for instance of dipping their fishing-nets in reindeer's blood to preserve them, is very similar to a custom prevailing among the people of Formosa and of some parts of China, namely that of dipping new nets and lines in general in pig's blood, which keeps them from flossing. The witchcraft of the Orotchis also is very similar to that among the aborigines of Formosa.

General Mesny and Mr. Kingsmill took part also in the discussion that followed, and the Chairman brought the proceedings to a close by saying:—The Orotchi and Goldi dialects belong to the Tungusic stock, as appears on examination. A strong peculiarity in them, as in Mongol and Turkish, is that the first, second and third personal pronouns are the same as our own. "Me" is the first personal pronoun throughout Tartary; more than this; it is also the basis of the pronominal suffix to the verb. The verb tree is constructed by placing this pronoun at the end for the person as in languages of the Indo-European stock. This fact, joined

with the identity of the substantive verb with our own, opens the way to the identification of the languages. This fact cannot fail to be accepted by philologists generally after no long period. This branch of the Asiatic Society would certainly do well to prosecute research in this direction in the near future. The way in which the verb is formed belongs to the essential structure of language in the Indo-European system. Being much the same in the speech of Tartary, we are compelled to adopt the principle of linguistic unity. The shapes of skulls and facial features differ, but not so much that ethnology will not find a way to account for the variations observed while allowing unity of descent.

The meeting then adjourned.

MINUTES *of* PROCEEDINGS *at a* GENERAL MEETING *held at the Society's Library, Museum Road, Shanghai, on Monday, 20th April* 1891, *at* 9 *p.m.*

Dr. JOSEPH EDKINS occupied the chair. There was a large number of members present.

The minutes of the last meeting having been read by the Hon. Sec., Mr. MENCARINI, the CHAIRMAN said:—Ladies and Gentlemen, the principal formal business before the meeting before I call upon General Mesny to read his paper on "Yunnan: its Treasures and Trade Routes," is to elect Mr. P. J. Hughes, recently Consul-General for Great Britain at this port, to be an Honorary Member of this Society. The number of our honorary members is very few, only six in fact, and it is a very special distinction. We members of the Council feel called upon to elect Mr. Hughes to the position of an honorary member because we feel very sensible, and I believe all the members of the Society in Shanghai unite in this feeling, that this distinction, the highest we can confer, ought to be conferred on Mr. Hughes, because of the very considerable attention he has given to the business of our meetings, and the admirable and courteous way in which he has always conducted the meetings of the Society, and the Council come before you now to ask you to confirm this election, which was mooted at the last meeting. By

our laws it is necessary, as the Secretary has mentioned in the minutes, to propose an honorary member at one meeting and elect him at another. The Council therefore now propose that Mr. P. J. Hughes be appointed an Honorary Member of this Society. Those who are in favour of this proposition will now kindly signify it by holding up their hands.

The motion was then carried unanimously amid hearty applause.

The CHAIRMAN:—The only new member elected during the interval is Mr. George Taylor. As there is no further business to transact I will now call upon General Mesny to read his paper.

General MESNY:—Mr. Chairman, Ladies and Gentlemen,—The modern name of Yunnan is said to be derived from a range of mountains, on its northern frontier, called the 雲嶺 *Yün ling*. In speaking of Yunnan generally, the whole province is meant, but the same name is also applied to a prefecture in the same province. It is the chief or principal one of fourteen prefectures, hence it is called the 首府 Shou Fu or Chief Prefecture, but its proper name is Yünnan Fu. Besides these, there is also a country called Yünnan Hsien, in the prefecture of Ta-li Fu. All this similarity of names is rather confusing to strangers. In official documents, literary essays, and poetical effusions, the character 滇 *Tien* is used to represent the whole region known to us as Yunnan, and the combination 滇省 *Tien-Sheng* is used in like manner to designate the provincial capital. The name Tien is derived from 滇國 *Tien Kuo*, which was the name of an independent nation of the Lolo tribes, occupying that region before the Christian era. Hence the use of the character 滇 *Tien* as a convenient phonetic for the designation of that immense province, otherwise called Yunnan.

The superficial area of Yunnan is over 160,000 English square miles. It extends through seven degrees of latitude and eight degrees of longitude, and is thus larger than Italy, but not near so densely populated as the Italian kingdom. The population of Yunnan has been variously estimated by the Chinese Government, as well as by individual collectors of such statistics, at from 3 to 17 millions.

Thus, in 1842, the official census returns gave a total of 3,374,269 families, which, according to the ordinary mode of calculation, allowing five persons to each family, gives a total of 17,871,345 individuals.

In 1877, at the close of a civil war that had lasted over twenty years, and had greatly reduced the number of inhabitants, I estimated the population to be about one million families.

Just at that time, however, there was a great influx of people from Szuch'uan, and other places, so I tabulated the population at about 5,600,000. Two years later an official census was taken, and the population was then declared to be over eleven million individuals.

In ancient times the taking of the census meant preparations for levying a poll-tax, so statistics were always kept as low as possible by the heads of families, and there is then reason to believe the returns rather low. About two-thirds of the present inhabitants of Yunnan consists of various tribes of *Lo-lo*, *Lo-su*, *Mu-su*, *Man-tzu* and *Miao-tzu*, collectively called or classed by the Chinese as *I-Jén*, a term which means "heathen," because the Chinese have failed to convert the native tribes to Confucianism or any other system of morality. These primitive people still retain many of their ancient manners and customs, refraining as much as possible from social intercourse with the Chinese. They have also certain tribal distinctions peculiar to the members of their respective tribes; thus the Miao-tzu and Lung Jén tribes in the eastern part of the province, live and dress differently from those of the centre and north of the province. In the east, especially in the prefecture of Kuang-nan Fu, I noticed the women were dressed in white shirts with large blue collars something like English naval service men. These women are, as a rule, exceedingly active and vigorous, fond of pleasure after their work is over in the evening, singing songs to amuse the old people, and chanting dialogues with their male admirers, whose love and passion is thereby excited to a very high pitch. The women enjoy more liberty of action and freedom from restraint than our European women. No married man ever attempts to interfere with his wife's enjoyment of pleasure, until she becomes

a mother, then a turn takes place. She becomes as virtuous as a saint, and courts her husband instead of other men. Husband and wife live as equals, and no inferiority of the wife is ever thought of in the settlement of family matters; both work hard alike. Amongst the Lo-lo and other tribes the case is very different. The women have to work hard like beasts of burden to maintain their jealous husbands in idleness and comparative ease. Quarrels ending in serious fights are not uncommon between Lo-lo men, jealous of their wives, and Chinese soldiers, admirers of the ill-used women. In the prefecture of Li-chiang Fu and northern parts of the province I have seen the women of the Mu-su tribes working like slaves in their fields on the mountain sides, or carrying burdens in the valleys from place to place, clad in nothing better than an old piece of tattered cottonade about the loins, descending to the knees, and an undressed goatskin on their backs, fastened over their shoulders and across the chest with a raw hide thong. Thus arrayed, these poor women are exposed to the piercing cold of their snow-clad hills in winter, and to the scorching rays of a mid-day sun in summer, whilst their lazy and jealous husbands remain at home, to nurse the children, sharpen their swords, and keep their powder dry. I have also seen the savage Lu-su, or Li-su, in the prefecture of Yung-chang Fu, Western Yunnan, ploughing their unhealthy fields in the valley of the Lu-chiang River, with women harnessed to their ploughs instead of cattle; the men held the ploughs, and were fully armed.

A Li-su farmer does not at all hesitate to harness his wife and mother, sister and daughter, to his plough at any time, while he, with a cross-bow and quiver of poisoned arrows on his back, a long sword in his girdle, and a short spear in one hand, follows the plough, and guides it in the furrow with his other hand. His father and uncle, or brother, son and son-in-law, all fully armed to the teeth, sit and watch the approaches to the family estate, ready to pounce on any unsuspecting Chinaman who may chance to halt on the way, astonished at the spectacle in the fields before him. As might be expected, many of these hardly used native women contract alliances with Chinese soldiers, who treat the

women much better than their native tribesmen. The offspring of such mixed alliances are usually better looking and more intelligent than either of their parents, and as they all speak two or more languages they generally serve as interpreters in the Chinese *yamêns*, or in one or other of the petty courts of the native tribal chief, to whom they are allied by their maternal kindred. Some of these interpreters of mixed parentage become persons of wealth and great influence by reason of their office, and are justly respected by all classes. Some of them, however, only succed in exciting the hatred of all persons who know them. Having acquired only the vices of both races, without the virtues of either, they concentrate in themselves the very essence of evil, ending their last days in the lowest depths of infamy.

Yunnan is bounded on the north by Thibet and Ssŭ-ch'uan; on the south by Siam, Annam, and Tongking; on the east by Kuei-Chow and Kuang-si, and on the west by Assam and Burma.

It is thus surrounded on three sides by foreign countries, the inhabitants of which are probably of kindred race with one or other of the various tribes inhabiting those parts of Yunnan adjoining their respective states.

The armies of the Chinese Emperor Han Wu Ti are said to have penetrated into Yunnan in the second century B.C., but no successful colonisation of the country was effected until the third century A.D., when the armies of Sin Pi, under the distinguished commander Chu Ko Siang, invaded the country, and subjugated its inhabitants to the sovereign rule of the Minor Han state, the capital of which state was at Chêng-tu Fu, in Ssŭ-ch'uan.

Yunnan does not appear to have been regularly annexed and officially administered as a Chinese province until the thirteenth century, when Kublai Khan, the Mongolian conqueror of the Chinese Empire, penetrated with his victorious troops through the whole of Yunnan, even to Burma, imposing his Imperial sway over both those countries, and in fact over nearly the whole of Asia.

The provincial government of Yunnan—including the Viceroyalty of the Yun-Kuei Provinces—is centered in the important walled city, called 雲南省城 Yünnan Shêng Ch'êng. The same is also

the prefectural capital of 雲南府 Yünnan Fu and the county seat of the 昆明縣 K'un Ming Magistracy. It lies in Lat. 25° 06 N., Long. 102° 52 E. of Greenwich, on the very brink of the famous Lake 滇池 Tien Chih and 2,000 miles by road south-west from Peking. This vast province is officially divided and subdivided for the convenience of better administration in much the same manner as other Chinese provinces; that is, as follow:—4 Circuits, 14 Prefectures, 4 Departments, 3 Districts, 13 sub-Prefectures of the Ting class, 26 sub-Prefectures of the Chou class, and 39 Counties, all of which are entirely under Chinese rule. Besides the above, there are 3 Prefectures, 6 sub-Prefectures of the Chou class, and 4 Counties, enjoying home rule under hereditary native chieftains.

The principal rivers flowing through Yunnan are eight in number, and they are named as follows:—

1.—Chin Sha Kiang	金沙江	"The River of Golden Sands."	
2.—Lan-tsang	„	瀾滄江	Me-kong River
3.—Lu	„	潞江	Salween „
4.—Lung Ch'uan	„	龍川江	Dragon „
5.—Yün-lung	„	雲龍江	T'ai-ping „
6.—Hei	„	黑江	Black „
7.—Hung	„	紅江	Red „
8.—Hsi-yang	„	西洋江	West „

The first four of these rivers take their rise in Thibet, the other four have their sources in Yunnan. None are navigable within the geographical limits of the province. The most important, though not the largest lake in Yunnan is called 滇池 Tien Chih, a name which is more applicable to a pool than to the present respectable sheet of water now under notice. *Chih* means "pool," whilst the usual Chinese name for lake is 湖 Hu. Lake Tien is about twenty-fives miles long by six or eight broad, and is navigable for boats and small steamers.

The lake is fed by many small streams, and drained by the *Pu Tu Ho*, which river throws its waters into the *Chin Sha Kiang*, about one hundred miles north of the provincial capital. Many

towns and villages lie along its shores. Communication by boat is carried on at night,—the strong winds that prevail by day rendering navigation difficult and unpleasant. The wind usually abates about three in the afternoon, and navigation commences at dusk. People subject to sea-sickness thus suffer less from the movement of the boats. The largest lake in Yunnan is called 洱海 Erh Hai, a name which suggests a sea. It is, however, but a lake, about thirty miles long by twenty miles broad in its broadest part. This lake is navigated by many boats at all hours of the day and night, and might also be navigated by steamers. It is fed by many a stream of water from the melting snow on the mountains to the north and west, and it is drained by two streams into the *Hei Kiang*, or Black River, flowing south into Annam. The city of Ta-li Fu is on its western shore. Yunnan province consists chiefly of an elevated plateaux some 5,000 to 6,000 feet above sea-level.

It is intersected by several mountain ranges, some of which have peaks of great altitude, especially those near the confines of Thibet, which are perpetually covered with snow. The Tsang-shan, overlooking the important prefectual city of 大理府 Ta-li Fu and Lake Erh, Lat. 25° 44 N., Long. 100° 22 E., is more or less covered with snow nine months in the year. The climate of Yunnan is pleasantly cool in summer, and fairly healthy, especially on the table land forming the principal portion of the province. The valleys down which flow the San-tsang, the Su, and the Sung-chuan rivers, are, however, very warm, sultry and dreadfully unhealthy, so much so that few people live in those valleys, although people, living on the neighbouring heights, descend to cultivate various crops on the fertile slopes. The natural resources of Yunnan are great indeed. It produces everything necessary for the sustenance of a dense population, despite its present poverty-stricken appearance. Opium, hemp, flax, rhubarb and other drugs abound. Maize, rice, wheat, and other cereals are grown almost everywhere; pears, oranges, lemons, and other fruit, potatoes and other vegetables are also cultivated to more or less perfection in many different places. Fine oxen, excellent sheep, goats, pigs, dogs, ponies, asses, mules, fish, ducks, geese, peacocks and fowls, are also reared and eaten as

food by all who can afford such, Mahomedans of course abstaining from the abominable flesh of the hog and the dog. Milk, butter, cheese, tea, sugar, and salt are also produced in various parts of the province, and at reasonable prices. Clothing stuff is, however, very dear, although coarse flannels and strong silks are woven from native produce, and an abundance of fine wool is available for manufacturing the best of cloth on the introduction of suitable machinery for that purpose. The mineral wealth of Yunnan is something enormous, and almost inexhaustible. It is greater by far than that of any other province in China. Rubies and sapphires, garnets and topazes, amethysts and jade abound in the western prefectures; gold, silver, platinum, nickel, copper, tin, lead, zinc, iron, coal and salt also abound in many places. Copper is especially abundant. Its ores are of excellent quality and have been worked for ages in over one thousand different places. This rich province has been more or less open to Chinese commercial intercourse for the long period of twenty-two centuries, and it has been administered entirely as a Chinese province for six centuries or more, yet nothing appears to have been done by the Chinese Government for the benefit of the native tribes whose country has been so forcibly annexed to the Chinese Empire.

The principal object of the Chinese in retaining their hold of this province appears to have been to secure the contract of its rich deposits of copper and other metals. Millions of taels of silver are expended annually in various ways throughout the province, but despite this fact, the people are exceedingly poor, wretched and miserable. The wealthiest of the natives are neither fed, dressed, or housed with anything like comfort, not to say luxury. Their best food is frugal indeed, and their best clothing is far inferior to that worn by our servants in Shanghai, whilst most of their houses would hardly be considered good enough for the cattle on a respectable English farm.

This great misery is no doubt principally due to the lack of water communications, and the badness of all roads, but a great deal of it is also due to the general incompetency of Chinese officials to govern alien races, and to the incapacity of the wretched people to govern themselves.

Yunnan will never flourish under Chinese rule. Something better is necessary. Good roads must be made, habits of industry must be encouraged, and the *corvée* system abolished, before any good can be effected. There are ten important roads by which travellers and merchandise may reach the provincial capital of Yunnan, from various parts of China and the surrounding countries, but the best of them is not so good as the worst of country roads in England. The accommodation for man and beast on the best and most frequented is wretched in the extreme. All of them are difficult and costly.

Eleven days' overland journey is the shortest time in which the capital of the province can be reached from the nearest river port. The first and most important of these ten routes is the Imperial highway from Peking through Chihli, Shantung, Honan, Hupei, Hunan, Kueichow, and Yunnan, and as far as the borders of Burma. The distance from Peking to Yünnan Fu by this route is 5,895 *li*, or over 2,000 miles, and it takes ordinary travellers at least one hundred days to accomplish the journey. Four months is, however, the usual time. Frequent halts and rests are necessary for the welfare of man and beast, so it happens that every ten or fifteen days the coolies and pack animals are all changed at certain well-known and regularly established centres for that purpose. Carts engaged at Peking may, however, come as far as Hsiang-yang Fu on the Han River in about thirty days without changing, but it is rarely done. The Imperial post couriers bearing important dispatches to or from Peking and Yunnan sometimes do the whole journey, 2,000 miles, in thirty days, but they change ponies every ten or fifteen miles.

The advent of steamers in China has brought about considerable changes. Thus, travellers leaving Peking for the distant province of Yunnan may now take cart to Tientsin in three days, embark there on a steamer, and reach Shanghai in four or five days. Thence they go by river steamer to Hankow in four days. At Hankow a junk may be hired to go up the Yangtsze River, through the Tungting Lake, and up the Yüan River to Chên-yuan-fu, Kueichow province, in forty days. Here the land journey commences,

as follows: Eight days to Kuei-yang Fu, capital of Kueichow province, thence eighteen days to Yünnan Fu, total eighty-eight days, or including rests 100 days. The whole journey may be accomplished in eighty days' actual travelling, but halts and rests are necessary, so 100 days is the usual time occupied in the actual performance of this feat. This is the best possible route for officials just now, in the way of accommodation afloat and ashore, nevertheless it is an arduous and comfortless task for everybody. Merchandise cannot be profitably forwarded to Yunnan by this route as the duties levied in Hunan and Kueichow are so heavy that the merchandise is made too costly for sale in Yunnan.

The Shui Fu or Chao Tung route is now the most important and least costly of all the trade routes to Yunnan from Central China. Travellers and merchandise may now come to Ichang by steamer, thence travel in junks on the Upper Yangtsze, through the Gorges, over the rapids, into Ssŭ-ch'uan province; pass Chung-kh'ing and stop at the prefectural city of 叙洲府 Hsü-chou Fu, also called Shui Fu, in Lat. 28° 38′ N., Long. 104° 46′ E, in about 40 days or six weeks. Here the land journey commences; pack animals and coolies are engaged; your baggage or merchandise is lashed on the pack-saddles and carried by the animals. You mount a sedan-chair and are borne by the coolies in the same manner as on the Imperial highway through Hu-nan and Kuei-chou already mentioned. You pass out of Ssŭ-ch'uan into Yunnan province at the famous Customs barrier called Lao-ya-Tan, thence by the prefectural cities of 昭通府 Chao-tung Fu, Lat. 27° 20′ N., Long. 103° 50′ E., and 東川府 Tung-ch'uan Fu, Lat. 26° 21′ N., Long. 106° 26′ E., to the provincial capital and prefectural city of Yünnan Fu, in twenty-four days; the whole journey from Ichang, by river and road, may be accomplished in about ten weeks, including stoppages. The bulk of Foreign goods now sold in Yunnan passes by this route, as the duties, though heavy, are still lighter than on all the other routes, and there is less danger of being robbed or squeezed by marauders. The alternate route to this from the Upper Yangtsze is the third route, which is called the Yung-ning Hsüan Wei route. Instead of going up as

far as Shui Fu we turn up a small river called the 永甯河 Yung-ning Ho, near the county seat of the 納谿縣 Na-ch'i Hsien Magistracy, Lat. 28° 48′ N., Long. 105° 23′ E., in the district of Lü-ch'ou, Ssŭ-ch'uan province. Junks from Ichang cannot go farther than Na-ch'i Hsien, smaller boats are necessary, and the journey to Yung-ning Hsien takes about four days, according to the state of the river. 永甯縣 Yung-ning Hsien is the name of the solitary county in the department called 叙永直隸廳 Hsü-Yung Chih-li Ting, Lat. 28° 08′ N., Long. 105° 18′ E. Ssŭ-ch'uan province, on the frontiers of Kuei-Chou province. It is the centre of a considerable amount of trade between both provinces.

Here the land journey commences with pack animals and coolie carriers as on the other route, passing through the cities Pi-chieh Hsien and Wei-ning Chou, by a difficult and mountainous road crossing the 青河 Ch'ing Ho, a small river forming the boundary line between the provinces of Yunnan and Kuei-chow. The first city we reach in Yunnan province is the sub-prefectural seat of 宣威洲 Hsüan-wei Chow, Lat. 26° 25′ N., Long 104° E., in the prefecture of Ch'ü-ching Fu, arriving at Yünnan Fu, the capital of Yunnan province, in twenty-one days. The road through Kuei-Chow being mountainous, and paved with rough limestone boulders which are as hard as flint and as smooth as glass, and as slippery as ice, is exceedingly tiresome and trying to man and beast. Officials and ordinary travellers prefer it however to the Shui-fu-Chao-tung route, but merchants with ordinary merchandise prefer the latter, as they thereby avoid the payment of dues in Kuei-Chow province. Traffic through Kuei-Chow is thus discouraged by the levying of dues on goods in transit.

The K'iang Hung Ssu Mao route was proposed by Captain Spriye many years ago as being suitable for the building of a railroad from Burma to Yunnan, and it is no doubt the likeliest to prove profitable as a railroad speculation. The British Indian Government may now encourage the building of railways through any part of Burma up to the Chinese frontier, and that line is said to be by far the easiest yet found. 思茅廳 Ssŭ Mao T'ing lies in Lat. 23° 30′ N., Long. 101° 40′ E., in the prefecture of Pu Erh Fu,

Yunnan province, and distant from the provincial capital about twenty-two days' journey, over the same kind of rough and rugged roads common to all parts of the Yun-kuei Vice-royalty. Pack animals and coolie carriers are also indispensable on this route. England cannot, of course, build railroads in China, but she can do so in Burma, and the sooner it is done the better, in order to place her manufactures as near as possible to the distributing markets at reasonable prices. This has often been spoken of as the most promising route for the developement of British trade with Yunnan, and it no doubt posessses certain advantages which must not be lost sight of.

Fine river steamers ascend the Irrawaddi River as far up as Bhamo, and it would not be a very difficult matter to build a railway from Bhamo, across the Katchyen Hills to Man-Yin on the Chinese frontier side of those hills, but the wild Katchyens are troublesome people. They must be tamed, and given, or found, a suitable means of livelihood, otherwise they will always prove a nuisance and terror, as they have been for ages, to all traders passing through their country. Man-Yin is distant from the nearest Chinese city, Têng Yueh T'ing, four days' journey, or about eighty miles on an easy road, through a well cultivated and fertile plain. 騰越廳 Têng Yueh T'ing is a sub-Prefecture of Yung Chang Fu, and the sub-Prefectural city lies in Lat. 24° 58′ N., Long. 98° 45′ E. The city of Têng Yueh is, however, still four days' journey distant from Yung Chang Fu, twelve days from Ta-li Fu, and twenty-five days from Yunnan Fu, the Provincial capital. This road, lying as it does across three large rivers and six ranges of high mountains. is far from proving an easy one to railway-makers across the province of Yunnan. The best thing England can do for her manufacturers is to transport the produce of their industry as near and cheaply as possible to the consuming markets, on the frontiers of China.

The next route is the Pai-sê-kuang-nan route. Travellers on this route leaving Canton in a junk may come up the West River to 梧洲府 Wu-chou Fu, Kuangsi province, in about eight days, at all seasons of the year, thence passing 南寧府 Nan-ning Fu

reach 百色廳 Pai Sê Ting, Lat. 24° N., Long 106° 20′ E., in one month, or six weeks, according to the state of the river current, which is sometimes very swift. Pai Sê Ting, is the centre of a considerable amount of trade in Foreign and other goods from Canton with Kuei-chou and Yunnan, favourably situated as it is at the head of navigation for junks on the West River. There are two trade routes leading thence to Yünnan Fu. It is the first of these that I call the sixth route, or Pai Sê Kwang-nan route. Leaving Pai Sê Ting and travelling by 廣南府 Kuang-nan Fu, Lat. 24° 10′ N., Long. 105° 06′ E., Yünnan Fu may be reached in about twenty-five days, as follows: Ascending first by boat from the city of Pai-sê, we may reach 剝隘 Po-ai, which is a market-town on the frontier of Yunnan, in three or four days. At Po-ai, pack animals and coolie carriers are engaged, journeying thence across mountains and valleys the prefectual city of 廣南府 Kuang-nan Fu, Lat. 24° 10′ N., Long. 105° 06′ E., may be reached in seven days, and Yünnan Fu may be reached in fourteen days more, thus making the whole journey by land and water about twenty-five days from Pai-sê. Boats from Po-ai to Pai-sê going with the stream do that part of the journey easily in one day, thus three days are saved on the return journey. The land route accommodation is exceedingly bad, cattle and people all herd in the same room or shed. Pack animals and coolies are not always to be found at Po-ai, especially in the summer months, as the town is very unhealthy.

The seventh route is the Pai-sê Hsing-yi route. This other route from Pai-se Ting to Yünnan Fu passes through the prefectural city of 興義府 Hsing-yi-fu, Lat. 25° 15′ N., Long. 106° E., in Kueichou province. It is the route usually followed by officials going from Kwangtung and Kwangsi to Yunnan, and has the advantage of being somewhat easier than the other, having inns for the accommodation of travellers, and provisions for their entertainment. It is possible to get along better than on the other route, but with all this it is still very bad, and the journey cannot be accomplished in much less than twenty-five days, twenty-three days being considered a good journey.

It will not pay however to send merchandise by this route, as duty must be paid on such whilst passing through Kuei-chou. The eighth route, the Pak-hoi Kai-hua route, is a long and tedious route, entirely overland along the frontiers of Tongking, and around by the prefectural city of 開化府 K'ai-hua Fu, Lat. 23° 10′ N., Long. 104° 50′ E., Yunnan province, and on to the provincial capital. It is a journey of fifty-two days. It is the route followed by large bands of armed traders from Pak-hoi, who carry foreign goods to Yunnan and return with opium from that province. The ninth route, the Lao-kai Man-hao Route, is now the shortest of all land routes to the capital of Yunnan, from the surrounding countries. Steamers ascend from Hanoi, in Tongking, to Lao-kai, and junks get up to the port of Man-hao, at the head of the navigable part of the now famous Red River. At Man-hao, pack animals and coolie carriers are obtainable, and the journey thence through 蒙子縣 Meng-tzu Hsien, Lat. 23° 34′ N., Long. 103° 36′ E., Yunnan province, to Yünnan Fu, is usually accomplished in eleven days. This is a very important matter to people who are interested in trade generally, but more especially to Chinese merchants in Yunnan. Yet, strange to say, the Chinese Government abandoned this important trade route to the tender mercies of the Black Flag filibusters for years without attempting to improve it or even to protect its own enterprising merchants, who, from time to time of late years, have attempted to trade thereon with the neighbouring states in that region. All other routes from the highest point of navigation to Yünnan Fu are longer by half, and no better off in point of convenience and accommodation for travellers and merchandise.

China has lost a favourable opportunity to benefit her people in Yunnan, and it is now too late to repair the fault by which she lost it. The tenth route, the Assam Wei-Hsi route, is one by which Yunnan may be reached from the British possessions in Assam, and which might be opened up to trade, for the mutual benefit of all parties concerned. The journey to Yünnan Fu, passing through the cities of 維西廳 Wei-hsi-t'ing, Lat. 27° 30′ N., Long. 100° 05′ E.; and 麗江府 Li-kiang Fu, Lat. 26° 52′ N., Long. 100° 27′ E., is also a toilsome and trying one, and occupies three or four

weeks at best, with the usual pack animals; no coolies worth having are available on this route. Each stage or day's journey on all the routes to Yunnan is supposed to be about twenty-five miles in actual length of route travelled, but in reality the stages vary from twenty or thirty miles, according to the difficulties of the road, and the accommodation available, so that the average is probably something *less* than twenty-five miles on a long journey.

The cost for transport or conveyance of goods and travellers is about the same on all the routes; that is, pack animals are usually paid three mace of silver for each stage, and coolies two mace for the same stages. Each animal can carry about 160 lbs. English, divided into two parcels of equal weight. The coolies, carry half that weight, also made up into two parcels. Heavier parcels may however be carried by two or more coolies in litters like sedan-chairs, but the weight carried by each coolie, in such cases is about twenty per cent. less than in the former case. The cost of carriage is thus very high indeed, so that it behoves all governments and people interested in the expansion of trade with Yunnan to do all they possibly can to lay their merchandise as near as possible to the various centres of consumption at the lowest possible prices consistent with profitable undertakings. The Chinese Government will not do anything for the improvement of the wretched condition of the people of Yunnan. Here then is an opportunity for simple Christianity and intelligent, humane missionaries. That distant province has in fact been a constant drain on the resources of the Empire for ages past, and is likely to continue so in future. In 1865 when nearly the whole of Yunnan was in the hands of the Mussulman rebels, China was on the point of relinquishing her hold of the province, and it would have been much better for her if she had done so. The only hope of relief from her present wretched condition that Yunnan may expect, is the probability that a man of talent in the art of governing will, some day, appear in that region, to carve himself a new and promising kingdom from that long ill-ruled fragment of this ancient and vast Empire.*

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* General Mesny desires to express his indebtedness to Mr. G. M. H. Playfair's excellent work on the *Cities and Towns of China*, from which the latitudes and longitudes given in the paper are taken as the most reliable authority extant on the subject.

General Mesny was warmly applauded when he finished speaking, and when order was again called, the CHAIRMAN, in thanking the reader of the paper, said it was most interesting to have their attention called to the little-known province General Mesny had described in the pleasing form of an itinerary.

The CHAIRMAN then said he had been reminded while General Mesny was speaking of Du Halde's great book, and it struck him that beyond all doubt itineraries and papers containing full and reliable information like that they had just heard must be considered most valuable, and likely to add considerably to the good results of their Society. There are many things which render the province of Yunnan most interesting to Foreigners at the present time. They had all been interested in the Japanese miners who went there some time ago, and who are still working at the mines in order to give the Chinese an opportunity of profiting by their experience, and to show them how the resources of Yunnan may be exploited in a proper manner. A lot of information about Yunnan is to be derived from the interesting account of that province given by Mr. Happer in his Trade Report for last year published by the Customs. They were also particularly well off in having such a valuable book as Rocher's on Yunnan, but if anyone wants to know the results to be expected from the working of the gold, copper and silver mines of of the province, or to get a brief and concise account of them, Mr. Happer's report is the best work to be consulted.

Mr. DONOVAN, in proposing a cordial vote of thanks to General Mesny, said the description the writer of the valuable paper they had just heard read had given of those trade routes was remarkably interesting to them at this time. He had been particularly struck with the account given of the terrible way the women of the province are treated, and he should like to ask General Mesny what is their condition in those districts of Yunnan which enjoy the blessings of home rule, and are they better off there than in the districts under the government of the Chinese.

General MESNY replied that the natives living under home rule are no better off than the natives of the other districts, because the Chinese Government compels the natives of the province generally

to contribute a considerable amount of grain and other tribute to the Imperial revenue.

Rev. W. Muirhead seconded the vote of thanks proposed to General Mesny by Mr. Donovan, and said the paper they had heard was a very valuable contribution to our knowledge of Yunnan, and he hoped the greatest publicity would be given to it. He had often marvelled at the wonderful amount of general information to be derived from Central Asian sources, and felt how much we are indebted to those who have undergone hardship and privation in order to visit those remote regions and describe them to us, thereby adding so inestimably to our knowledge of things in general. Their friend had done well in putting together such a valuable paper in connection with his itineraries, and it would be very much to be regretted if his knowledge were not availed of. They would all be highly pleased to hear General Mesny had been appointed to some position in Yunnan where his unique knowledge could be made practically useful. They were aware he had been there for a number of years, and it would be interesting if he gave them a narrative of his experiences as regards himself, but at the same time, as a Society, they were indebted to a very great degree to him for the important information given them that night. The important view which presented itself to Mr. Muirhead from hearing General Mesny's paper was in connection with ethnological observation. Was it not wonderful that the tribes of Yunnan have existed in that great country in such a low condition for thousands of years? We have been accustomed to speak of the Chinese as a very long-lived people; they have been here for millenniums, but when we look at their annals we find there were people here earlier than they, and it was about these they had heard from General Mesny there that night. We are aware the Babylonians, Persians, and other contemporary nations have long disappeared, and to what extent we know them we know them only from inscriptions on stone and from the scattered remains of the great edifices they constructed; but not only the Chinese, but people of China anterior to the Chinese, are living here still, and it is of the utmost importance to enquire in what way they might be improved, civilised and, above

all, Christianised; and Mr. Muirhead trusted that there will be an impetus imparted to some at least of the missionaries to make them seek those poor people of whom they had just heard with such deep interest.

Mr. TAYLOR asked could General Mesny give any further information about the winds he had referred to as agitating the lakes of Yunnan by day and dying away at night.

General MESNY replied he had paid some attention to the matter for a month by going down to the lake every day when there was a strong breeze blowing, and the water was very much agitated, but in the evening the wind always subsided and the water became smooth. In the West Indies there is nearly always a sea breeze by day and a land breeze by night.

Mr. BREDON said, when they came to the meeting they had all expected to hear a great deal of valuable information from General Mesny about Yunnan, and they had heard it, but still there were one or two points upon which he thought a good deal of information might still have been given. The great interest that has attached to Yunnan of late years, so far as he could see, was due to its great tradal possibilities. There has been a sort of feeling prevailing very generally that Yunnan is a species of El Dorado where fortunes could easily and rapidly be made by any adventurer enterprising enough to tap her immense mineral wealth,—a feeling probably due to the exploits of the 18 or 19 Japanese gentlemen referred to by Dr. Edkins that evening. But they were all aware that mining is a precarious mode of making a fortune, and legitimate trade is generally considered a much better way of acquiring wealth. He was disappointed to find from what General Mesny had said about the trade of Yunnan that there are no imports. General Mesny had laid down and described very fully ten distinct trade routes, and his description of them was not very promising for the growth of import trade. Suppose we go about importing a vast amount of merchandise, how are we to do it? We will have enormous distances to travel before goods can be laid down in any considerable centres in Yunnan, and there are absolutely no facilities there for cheap

and rapid transit. Everyone who has been in China knows the value of her waterways, but there are no waterways in Yunnan, and all the transit has to be done by coolies, and coolies at 250 cash a day for 14 days would be very expensive work. It is plain the import trade in Yunnan is not going to be a very great success. There are eleven millions of inhabitants in Yunnan, of whom two-thirds are cultivated savages. When he heard of trade routes that were going to be opened up to Yunnan and Burma he always asked what is going to be the result of them. There is a certain amount of import trade now going on in Yunnan; goods can be carried from Hankow to Yunnan for considerably less money than in any other part of China, but when Yunnan comes to be generally supplied with goods, the question of where she is going to be supplied from is one possessing special interest for the natives of Shanghai. From what General Mesny had said, he seemed to think that Burma will be the ultimate source of import into Yunnan, but would that do people here any good? Referring to the condition of Yunnan generally, Mr. Bredon said he was very much inclined to think that the remark made by Lord Salisbury about the Sister Kingdom, that it wants a few years of strong government, applies in an eminent degree to the province General Mesny had just described. He just dropped these few remarks hoping General Mesny would tell them something about the prospects of Yunnan, and how far the popular opinion that it is a kind of El Dorado or Golconda, and the hopes of the great future in store for it, are likely to be realised.

The CHAIRMAN said Mr. Happer spoke of musk and tin as articles of export from Yunnan, and he noticed the export of these articles is increasing rapidly. If the imports cannot be great the exports may be very valuable, and of course the expense of carrying articles is decreased in proportion to the value of the goods. There is every reason to hope that in the going forward of Christian missions immense good will be done for the development of Yunnan, because in Burma the success of the missions had been attended with a remarkable improvement in the condition of that country.

The vote of thanks proposed to General Mesny by Mr. Donovan and seconded by Rev. Mr. Muirhead was then put to the meeting and carried with acclamation.

General Mesny, in answer to Mr. Bredon's enquiries about the prospects of trade in Yunnan, said the only routes that were likely to be improved in a satisfactory manner were the route by the Red River to Tongking and one or two others that were likely to be improved by the opening of Chungking, and something also might be done by way of Burma. He had not recommended the building of railroads in Yunnan, because the country offered too many natural obstacles, but still something can doubtless be done to improve matters relating to trade there very considerably. He was very grateful to the meeting for the attentive hearing they had given him and for the vote of thanks they had passed to him.

The proceedings then terminated.

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Alcock, Sir Rutherford, K.C.B., D.C.L.	Athenæum Club, Pall Mall, London, S.W.	1864
Hart, Sir Robert, G.C.M.G., LL.D.	Inspectorate - General of Customs, Peking.	1864
Hughes, P. J., M.A.	C/o Hongkong & Shanghai Banking Corporation, London.	1868
Legge, Prof. James, D.D. ...	University of Oxford	1864
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Zottoli, Père Angelo	Jesuit Mission, Sicawei, Shanghai ...	1886

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†Bretschneider, E. M.D. ...	Moïka, 64, St. Petersburg	1880
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Happer, Rev. A. P., D.D. ...	Canton	1864
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†John, Rev. Griffith, D.D. ...	Hankow	1864
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†McCartee, D. B., M.D. ...	C/o Dr. Ellinwood, 23, Centre Street, New York, U.S.A.	1865
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Acheson, James	Custom House, Shanghai	1880
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†Allen, H. J.	10, Norton, Tenby, Pembrokeshire ...	1872
Andersen, N. P.	Custom House, Shanghai	1883
†Anderson, G. C.	C/o Messrs. Jardine, Matheson & Co., Hongkong	1880
Anding, W.	C/o Mr. W. Rosenthal, Unterstrasse, 85, Eisenach, Germany	1887
Andrew, W. M.	Custom House, Shanghai	1891
Arnoux, Comte G. d'	C/o Custom House, Shanghai ...	1883
§Ball, J. Dyer	Supreme Court, Hongkong ...	1883
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Camera, L.	C/o Messrs. Lintilhac & Co., Shanghai	1891
Campbell, C. W.	British Consulate-General, Seoul, Corea	1890
†Carles, W. R.	British Consulate, Chinkiang ...	1887
Carrall, James W.	Custom House. Chefoo	1885
Chalmers, James L.	C/o Custom House, Canton ...	1885
§Chavannes, Ed.	French Legation, Peking	1889
Cocker, T.	Custom House, Shanghai	1885
Collyer, Chas. T.	British and Foreign Bible Society, Shanghai	1891
Cordes, Aug. C.	Messrs. A. Cordes & Co., Tientsin ...	1877
Coughtrie, J. B.	45, Queen's Road, Hongkong ...	1879
Creagh, E. Fitzgerald ...	Custom House, Hankow	1886
Danforth, A. W.	Cotton Mill Co., Shanghai	1887
De Groot, Dr. J. J. M. ...	407, Marnixstraat, Amsterdam ...	1887
Deighton-Braysher, C. ...	Custom House, Kiukiang	1870
Dennys, H. L.	Secretary's Office, City Hall, Hongkong	1877
Dmitrevsky, P. A.	Russian Legation, Seoul	1882
Dodd, John	C/o Messrs. Dodd & Co., Tamsui ...	1872
Donovan, J. P.	Custom House, Shanghai	1891
Dowdall, Chas.	21, Foochow Road, Shanghai ...	1881
§†Drew, E. B.	Inspectorate-General of Customs, Peking	1882
Dülberg, F. W. E.	Customs House, Keelung	1890
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Elwin, Rev. Arthur	Church Missionary Society, Hangchow	1890
†Faber, Rev. Ernst, DR. THEOL.	18, Nanking Road	1886
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Francis, R.	10, Peking Road, Shanghai	1888
Franke, Otto, PH.D.	German Consulate-General, Shanghai	1890
Fraser, M. F. A.	C/o British Consulate-General, Sh'ai	1888
Frater, Alex.	C/o H.M. Consulate-General, S'hai...	1877
†Fries, S. Ritter von	C/o Custom House, Shanghai ...	1885
Fulford, H. E.	C/o British Consulate-General, Shanghai	1885
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†Gardner, C. T.	British Consulate, Hankow ...	1877
Gatti, Carlo	C/o Messrs. Jardine, Matheson & Co., Shanghai	1886
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Goebel, Max.	Belgian Consulate-General, Shanghai	1890
Grant, P. V.	Messrs. Boyd & Co., Shanghai ...	1871
Gratton, F. M., A.R.I.B.A ...	The Bund, Shanghai	1889
Günzburg, Baron G. de ...	Bubbling Well Road	1892

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§Hall, J. C., M.A.	British Consulate, Nagasaki	1888
†Hallifax, T. E.	Jingo Chiu Gakko, Koriyama, Fukushima Ken, Japan	1889
Hanbury, T.	C/o Messrs. Iveson & Co., Shanghai .	1868
Hannen, N. J.	H.B.M.'s Supreme Court, Shanghai ...	1891
†Happer, Andrew P., Jr. ...	C/o Rev. A. P. Happer, D.D., Glenshan, Allegheny County, Penn., U.S.A.	1885
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Hart, Rev. V. C., M.A. ...	2, Whangpoo Road	1887
Henderson, D. M., M.I.C.E. ...	Custom House, Shanghai	1885
Henderson, E., M.D.	Szechuen Road, Shanghai	1876
†Henry, A., M.A.	Custom House, Takow	1881
Hey, E.	8, Foochow Road, Shanghai ...	1886
Hippisley, A. E.	Custom House, Lappa	1876
†Hirth, F., PH.D.	Custom House, Chinkiang	1877
†Hobson, H. E.	Custom House, Chungking	1868
Hodges, Rev. H. C., M.A. ...	The Deanery, Shanghai	1887
Hoetink, B.	Swatow	1882
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Hunter, Rev. S. A., M.A., M.D., LL.D.	Morgan Town, West Virginia, Va., U.S.A.	1890
†Imbault-Huart, C.	French Consulate, Canton	1880
Jack, J. B.	Custom House, Hankow	1890
†Jamieson, G.	H.B.M.'s Supreme Court, Shanghai .	1868
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†Jamieson, R. A., M.A. ...	40, Szechuen Road, Shanghai ...	1864
Jansen, D. C.	Astor House, Shanghai	1877
Jeffrey, Sydney	Hongkong	1892
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Keswick, J. J.	C/o Messrs. Jardine, Matheson & Co., Shanghai	1885
King, Paul H.	C/o Custom House, Shanghai ...	1886
†Kingsmill, Thos. W.	Szechuen Road, Shanghai	1864
Kleinwächter, F.	Lutherstr., Berlin	1868
Kliene, R.	United States Consulate, Ningpo ...	1890
†Kopsch, H.	Inspectorate General of Customs, Shanghai	1877
Lemke, F.	Messrs. Meyer, Lemke & Co., S'hai	1890
Lenz, Ph., PH.D.	German Consulate, Chefoo	1885
Lépissier, E.	Custom House, Shanghai	1885
Lieder, Ph.	Messrs. Mandl & Co., Shanghai ...	1886
†Little, Archibald J.	C/o R. W. Little, Esq., *North China Herald* Office	1868
Little, L. S., B.A.	1, Hongkong Road, Shanghai ...	1879
Little, Robt. W.	*North China Herald* Office	1886
Lockhart, J. H. Stewart ...	Hongkong	1885

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Low, E. G.	C/o Messrs. Fearon, Low & Co. ...	1892
Lyall, Leonard	C/o Custom House, Shanghai ...	1892
Macgregor, John	Messrs. Jardine, Matheson & Co., Shanghai	1888
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Mackey, Jas.	38, Yama, Kobe, Japan	1886
Maclellan, J. W.	13, Pilrig Street, Edinburgh ...	1888
Major, E.	14, Hankow Road, Shanghai ..	1887
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Marzal, Y. de Faria J. de ...	Spanish Legation, Peking	1890
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McIntosh, G.	Amer. Presb. Mission Press, S'hai ..	1889
Mencarini, J.	Custom House, Foochow	1887
Merz, C., PH.D.	German Consulate, Takow, Formosa.	1883
Mesny, Gen. W.	Shanghai	1890
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Milles, Capt. D. A., R.E. ...	Bude, Cornwall	1888
†Möllendorff, O. F. von, PH.D.	C/o Mr. P. G. von Möllendorff, Inspectorate-General of Customs, Shanghai	1877
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Mortimore, R. H.	British Legation, Peking	1885
Moule, Ven. Archdeacon A. E., B.D.	C/o Church Missionary Society, Shanghai	1888
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Murray, D. S.	British and Foreign Bible Society, Shanghai	1887
Navarra, B. R. A.	C/o *North China Herald* Office, Shanghai	1890
†Nocentini, L.	Via del Proconsolo, 21; Firenze, Italy	1884
Novion, A.	Custom House, Wenchow	1885
Nully, R. de	Custom House, Chinkiang	1884
O'Brien-Butler, P. E.	C/o H. B. M. Consulate-General, Shanghai	1886
Ohlmer, E.	Inspectorate-General of Customs, Peking	1885
Ottomeier, P. A. W.	Shanghai	1886
Oxenham, E. L.	42, Addison Road, London, W. ...	1887
Palamountain, B.	Inspectorate-General of Customs, Shanghai	1886
†Parker, E. H.	C/o British Residency, Bhirma ...	1877

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Patersson, J. W.	Custom House, Hankow	1883
Perkins, H. M., D.D.S. ...	1. Kiukiang Road, Shanghai ...	1885
Peterson, Denton E., D.D.S. ...	9, Connaught House, Queen's Road Hongkong	1887
†Phillips, Geo.	C/o British Consulate General, S'hai.	1888
Pichon, L., M.D.	Faubourg St. Honoré, 166, Paris ...	1876
Piry, Théophile	C/o Customs, Shanghai	1885
Plancy, V. Collin de... ...	French Legation, Tokio	1877
Playfair, G. M. H.	British Consulate-General, Shanghai	1885
Prentice, John	Messrs. Boyd & Co., Shanghai ...	1885
Price, G. U.	Messrs. Tait & Co., Amoy	1886
Pym, E. T.	Customs House, Chefoo	1885
Rathsam, Th.	German Consulate, Canton	1887
Rayner, Charles	Messrs. Carlowitz & Co., Tientsin...	1886
Rees, Claude A.	Messrs. Gilmour & Co., Shanghai ...	1889
Reinsdorff, F.	German Consulate, Seoul, Corea ...	1883
Rémusat, J. L.	Custom House, Tamsui	1885
Rennie, Sir Richard T. ...	Reform Club, Pall Mall, London ...	1885
Rinkel, Ferd.	C/o Deutsch-Asiatische Bank, S'hai.	1890
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Ruhstrat, Ernst	Custom House, Chinkiang	1886
Russell, Sir Jas., C.M.G. ...	Hongkong	1870
Sampson, Theo.	12, Madeira Road, Streatham, London, S.W.	1868
Samson, J.	C/o Messrs. Reid, Evans & Co., Shanghai	1877
Schjöth, Fr.	C/o Daniel Steen, Christiania, Norway	1885
Schmacker, B.	Messrs. Carlowitz & Co., Shanghai...	1887
Schmidt, K.	Messrs. Carlowitz & Co. Shanghai...	1888
Seckendorff, Baron Edm. von	German Consulate, Tientsin ...	1880
Sheveleff, M. G.	Wladivostock	1891
Snethlage, H.	Shanghai	1885
Southey, T. S.	Custom House, Amoy	1880
Spinney, W. F.	C/o Custom House, Shanghai ...	1885
Startseff, A. D.	Messrs. Tokmakoff, Molotkoff & Co., Tientsin	1889
Streich, K. I.	German Consulate, Swatow ...	1880
Stripling, A. B.	C/o British Consulate, Jenchuan, Corea	1877
Styan, F. W.	C/o The P. & O. S. N. Co., Shanghai.	1884
Sutherland, H.	C/o Messrs. Fairhurst, Sutherland & Co., Foochow	1876

Name.	Address.	Year of Election
Syburg, F. von	German Consulate, Bombay ...	1886
Tanner, Paul von	Custom House, Shanghai	1881
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Taylor, F. E.	Custom House, Kowloon	1885
Taylor, Geo.	Custom House, Shanghai	
Thwing, Prof. E. P., M.D. ...	156, St. Mark's Avenue, Brooklyn, New York, U.S.A.	1890
Timm, J.	Great Northern Telegraph Co., S'hai	1891
Ting I-hsien	Inspectorate-General of Customs, Shanghai	1890
Underwood, G. R., M.B. ...	Kiukiang	1888
Valdez, J. M. T.	Portuguese Consulate-General S'hai.	1888
Vissière, A.	French Consulate-General Shanghai.	1880
Voelkel, S.	Pharmacie de l'Union, Shanghai ...	1885
†Volpicelli, Z. H.	Custom House, Shanghai	1886
Vosy-Bourbon, H.	C/o Messrs. L. Grenard & Co., S'hai.	1892
§Vouillemont, E. G.	Comptoir National d'Escompte de Paris, Shanghai	1888
Wade, H. T.	Shanghai Club	1886
Washbrook, W. A.	Custom House, Chinkiang	1881
Watters, T., M.A.	British Consulate, Canton	1865
Wenyon Rev. Charles ...	Fatshan, Canton	1892
Wilcox, R. C.	*Daily Press* Office, Hongkong ...	1877
†Williams, Rev. E. T. ...	192, E. Long St., Columbus, Ohio, U.S.A.	1889
Wood, A. G.	Messrs. Gibb, Livingston & Co., Hongkong	1879
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Published by KELLY & WALSH, LIMITED, Shanghai.